# THE PALESTINE EXPLORATION FUND.

## NOTES AND NEWS.

Herr Schick's letters published in the present number have reference to explorations in several localities of much interest to students, especially the ancient pool north of the city, near the tombs of the Kings, the Khatuneyeh buildings, and the north-western corner of the present city. Herr Schick hazards the opinion that certain remains recently found in the latter locality show that even in remote times the city extended to there.

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The excavations at Tell el Hesy were still being carried on when Mr. Bliss last wrote. His notes upon the work will be found at page 36, and a full report will be published later on. The party have suffered severely from the effects of the malaria for which the place is notorious. Mr. Bliss himself is almost the only one who has escaped fever.

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Mr. Bliss's elaborate article on the Maronites has been long in our hands, but there has been so much pressure on the space of the *Quarterly Statement* that its publication has had to be repeatedly postponed. We now print the first instalment of it.

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In the *Quarterly Statement* for 1890, page 159, Mr. Flinders Petrie stated in connection with his measurements of Rock-cut Tombs about Jerusalem, that he hoped to obtain more material and work out the results more fully in future. He has now kindly furnished us with a further paper on the subject which is printed in the present number.

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On his last journey across the Jordan Mr. G. R. Lees was taken prisoner at Busr el Hareer, and being allowed to wander about under guard discovered an inscription which may interest some of our readers.

A paper by M. L. Lortet, describing the discovery of the *microbes* of gangrene and tetanus in the mud of the Dead Sea, has been forwarded to us. This discovery is one of great interest in connection with diseases of Palestine from which explorers and others sometimes suffer, and we therefore print a translation of the communication.

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The "Times" of December 4th contained an important letter from Major Conder on the decipherment of the Hittite Inscriptions. The subject has also been treated by him in an article in the "Daily Graphic" of the 19th inst., and he has promised a paper respecting it for the *Quarterly Statement* of April next.

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The celebrated Karnak lists of Thothmes III. of places tributary to Egypt in Palestine and Northern Syria, edited by the Rev. Henry G. Tomkins, will appear in the next volume of "Records of the Past."

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As we are going to press some further comments on the Tell el Hesy Inscription by M. Clermont-Ganneau have been received, the publication of which we are obliged to defer until our next.

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A valuable series of barometrical determinations of heights in Lebanon, Anti-Lebanon, and on Hermon, by Prof. R. H. West, has been received and will be published in the April number of the *Quarterly Statement.*

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The following is from the "Jewish Chronicle" of the 18th December:—

"The 4th December, witnessed the opening of a portion (46 kilometres out of a total of 87) of the railway between Jaffa and Jerusalem. M. Ledoulx, the French Consul, M. Frutiger, a Jerusalem banker and administrator of the Company, and several Turkish officials, travelled by the first train. The first idea of the railway was conceived by a Jew, M. Navon, of Jerusalem; it has been executed by French engineers, and the issue of the shares in the Company has been entrusted to a bank in Paris, the directors of which are pronounced Ultramontanes. The steam locomotive in Jerusalem has been preceded by a still more recent invention of modern science—the electric light."

It is stated by Mr. H. Guedalla, in a letter to the same newspaper, that the undertaking is being financed by "a party of the extreme orthodox Catholics," who are believed to have taken it up "with the view of making Jerusalem annually the resort of tens of thousands of pilgrims, besides the great influence they will be able to exercise in future over the inhabitants."

The museum of the Fund, at 24, Hanover Square, is now open to subscribers between the hours of 10 a.m. and 5 p.m., except on Saturdays, when it closes at 2 p.m.

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The Committee will be glad to receive donations of Books to the Library of the Fund, which already contains many works of great value relating to Palestine and the Holy Land.

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It may be well to mention that plans and photographs alluded to in the reports from Jerusalem and elsewhere cannot all be published, but all are preserved in the offices of the Fund, where they may be seen by subscribers.

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The first volume of the "Survey of Eastern Palestine," by Major Conder, has been issued to subscribers. It is accompanied by a map of the portion of country surveyed, special plans, and upwards of 350 drawings of ruins, tombs, dolmens, stone circles, inscriptions, &c. The edition is limited to 500. The first 250 subscribers pay seven guineas for the three volumes; subscribers to the "Survey of Western Palestine" are privileged to have the volumes for this sum. The price will be raised, after 250 names are received, to twelve guineas. The Committee *are pledged never to let any copies be subscribed for under the sum of seven guineas.* Mr. A. P. Watt, 2, Paternoster Square, is the Sole Agent. The attention of intending subscribers is directed to the announcement after Maps and before Contents of this number.

Mr. H. Chichester Hart's "Fauna and Flora of Sinai, Petra, and the Wâdy 'Arabah" has been completed and sent out to subscribers.

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The following gentlemen have kindly consented to act as Honorary Local Secretaries:

The Rev. S. Bond, Church Institute, Bolton and Horwich, in place of Rev. H. S. Patterson, resigned.
The Rev. Canon Evans, Solihull Rectory, for Birmingham.
Surgeon-General Hutchinson, M.D., for Bayswater.
The Rev. Charles Chidlow, M.A., Caio Vicarage, for Llandilo.
The Rev. L. S. Safford, for Spencer, Mass., U.S.A.
The Rev. T. E. Dowling, Domestic Chaplain to Bishop Blyth, Jerusalem.
The Rev. L. G. A. Roberts, Hudson Parsonage, Quebec, Canada.

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The price of the remaining copies of "Palestine under the Moslems" has been raised to 10*s.* each to subscribers to the fund, and 16*s.* to non-subscribers.

The books now contained in the Society's publications comprise an amount of information on Palestine, and on the researches conducted in the country, which can be found in no other publications. It must never be forgotten that no single traveller, however well equipped by previous knowledge, can compete with a scientific body of explorers, instructed in the periods required, and provided with all the instruments necessary for carrying out their work. The books are the following (*the whole set* (1 *to* 13) *can be obtained by subscribers to the Fund by application to the Head Office only* (24, *Hanover Square, W.*), *for* £3 1*s.* 6*d.*, *carriage paid to any part in the United Kingdom only*) :—

By Major Conder, R.E.—

(1) "Tent Work in Palestine."—A popular account of the Survey of Western Palestine, freely illustrated by drawings made by the author himself. This is not a dry record of the sepulchres, or a descriptive catalogue of ruins, springs, and valleys, but a continuous narrative full of observations upon the manners and customs of the people, the Biblical associations of the sites, the Holy City and its memories, and is based upon a six years' experience in the country itself. No other modern traveller has enjoyed the same advantages as Major Conder, or has used his opportunities to better purpose.

(2) "Heth and Moab."—Under this title Major Conder provides a narrative, as bright and as full of interest as "Tent Work," of the expedition for the *Survey of Eastern Palestine*. How the party began by a flying visit to North Syria, in order to discover the Holy City—Kadesh—of the children of Heth; how they fared across the Jordan, and what discoveries they made there, will be found in this volume.

(3) Major Conder's "Syrian Stone Lore."—This volume, the least known of Major Conder's works, is, perhaps, the most valuable. It attempts a task never before approached—the reconstruction of Palestine from its monuments. It shows what we should know of Syria if there were no Bible, and it illustrates the Bible from the monuments.

(4) Major Conder's "Altaic Inscriptions."—This book is an attempt to read the Hittite Inscriptions. The author has seen no reason to change his views since the publication of the work.

(5) Professor Hull's "Mount Seir."—This is a popular account of the Geological Expedition conducted by Professor Hull for the Committee of the Palestine Fund. The part which deals with the Valley of Arabah will be found entirely new and interesting.

(6) Herr Schumacher's "Across the Jordan."

(7) Herr Schumacher's "Jaulân."—These two books must be taken in continuation of Major Conder's works issued as instalments of the "Survey of Eastern Palestine." They are full of drawings, sketches, and plans, and contain many valuable remarks upon manners and customs.

By Walter Besant, M.A.—

(8) "The Memoirs of Twenty-one Years' Work."—This work is a popular account of the researches conducted by the Society during the past twenty-one years of its existence. It will be found not only valuable in itself as an interesting work, but also as a book of reference, and especially useful in order to show what has been doing, and is still doing, by this Society.

(9) Herr Schumacher's "Kh. Fahil." The ancient Pella, the first retreat of the Christians; with map and illustrations.

By George Armstrong—

(10) Names and Places in the Old and New Testament and Apocrypha. This is an index to all the names and places mentioned in the Bible and New Testament, with full references and their modern identifications, as shown on the new map of Palestine.

(11) Besant and Palmer's "History of Jerusalem."—The "History of Jerusalem," which was originally published in 1871, and has long been completely out of print, covers a period and is compiled from materials not included in any other work, though some of the contents have been plundered by later works on the same subject. It begins with the siege by Titus and continues to the fourteenth century, including the Early Christian period, the Moslem invasion, the Mediæval pilgrims, the Mohammedan pilgrims, the Crusades, the Latin Kingdom, the victorious career of Saladin, the Crusade of Children, and many other little-known episodes in the history of the city and the country.

(12) Northern 'Ajlûn "Within the Decapolis," by Herr Schumacher.

By Henry A. Harper—

(13) "The Bible and Modern Discoveries."—This work, written by a Member of the Executive Committee of the Palestine Exploration Fund, is an endeavour to present in a simple and popular, but yet a connected form, the Biblical results of 22 years' work of the Palestine Exploration Fund. The writer has also availed himself of the discoveries made by the American Expeditions and the Egyptian Exploration Fund, as well as discoveries of interest made by independent travellers.

The Bible story, from the call of Abraham to the Captivity, is taken, and details given of the light thrown by modern research on the sacred annals. Eastern customs and modes of thought are explained whenever the writer thought that they illustrated the text. This plain and simple method has never before been adopted in dealing with modern discovery.

To the Clergy and Sunday School Teachers, as well as to all those who love the Bible, the writer hopes this work will prove useful. He is personally acquainted with the land; nearly all the places spoken of he has visited, and most of them he has moreover sketched or painted. It should be noted that the book is admirably adapted for the School or Village Library.

By Guy le Strange—

(14) "Palestine under the Moslems."—For a long time it had been desired by the Committee to present to the world some of the great hoards of information about Palestine which lie buried in the Arabic texts of the Moslem geographers and travellers of the Middle Ages. Some few of the works, or parts of the works, have been already translated into Latin, French, and German. Hardly anything has been done with them in English, and no attempt has ever been made to systematise, compare, and annotate them.

This has now been done for the Society by Mr. Guy le Strange. The work is divided into chapters on Syria, Palestine, Jerusalem, and Damascus, the provincial capitals and chief towns, and the legends related by the writers consulted. These writers begin with the ninth century and continue until the fifteenth. The volume contains maps and illustrations required for the elucidation of the text.

The Committee have great confidence that this work—so novel, so useful to students of mediæval history, and to all those interested in the continuous story of the Holy Land—will meet with the success which its learned author deserves.

By W. M. Flinders Petrie—

(15) "Lachish" (one of the five strongholds of the Amorites).—An account of the excavations conducted by Mr. Petrie in the spring of 1890, with view of Tell, plans and sections, and upwards of 270 drawings of the objects found.

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By Trelawney Saunders—

(16) "An Introduction to the Survey of Western Palestine, describing its Waterways, Plains, and Highlands, with special reference to the Water Basin—(Map. No. 10)."

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The first edition of the new map of Palestine is nearly exhausted and a second edition is in progress. This map embraces both sides of the Jordan, and extends from Baalbek in the north to Kadesh Barnea in the south. All the modern names are in black; over these are printed in red the Old Testament and Apocrypha names. The New Testament, Josephus, and Talmudic names are in blue, and the tribal possessions are tinted in colours, giving clearly all the identifications up to date. It is the most comprehensive map that has been published, and will be invaluable to universities, colleges, schools, &c.

It is published in 21 sheets, with paper cover; price to subscribers to the Fund, 24*s.*, to the public, £2. It can be had mounted on cloth, rollers, and varnished for hanging. The size is 8 feet by 6 feet. The cost of mounting is extra (*see* Maps).

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In addition to the 21-sheet map, the Committee have resolved on issuing as a separate map the 12 sheets (viz., Nos. 5-7, 9-11, 13-15, 20-22), which include the whole of Palestine as far north as Mount Hermon, and the districts beyond Jordan as far as they are surveyed. *See* key-map to the sheets.

The price of this map, in 12 sheets, in paper cover, to subscribers to the Fund, 12*s.* 6*d.*; to the public, £1 1*s.*

The size of the map, mounted on cloth and roller for hanging, is 4½ feet by 6¾ feet.

Any single sheet of the map can be had separately, price, to subscribers of the Fund, 1*s.* 6*d.* Mounted on cloth to fold in the pocket suitable for travelling, 2*s.* To the public 2*s.* and 2*s.* 6*d.*

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*A copy of names and places in the Old and New Testament, with their modern identifications and full references, can be had by subscribers with either of these maps at the reduced price of* 2*s.* 6*d.*

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Branch Associations of the Bible Society, all Sunday School Unions within the Sunday School Institute, the Sunday School Union, and the Wesleyan Sunday School Institute, will please observe that by a special Resolution of the Committee they will henceforth be treated as subscribers and be allowed to purchase the books and maps (by application only to the Secretary) at reduced price.

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The income of the Society, from September 18th to December 18th was—from annual subscriptions and donations, including Local Societies, £579 9*s.* 10*d.*; from all sources, £656 7*s* 8*d.* The expenditure during the same period was £757 7*s.* 1*d.* On December 20th the balance in the Bank was £244 7*s.* 6*d.*

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Subscribers are begged to note that the following can be had by application to the office, at 1*s.* each:—

1. Index to the *Quarterly Statement*, 1869–1880.
2. Cases for Herr Schumacher's "Jaulân."
3. Cases for the *Quarterly Statement*, in green or chocolate.
4. Cases for "Abila," "Pella," and "'Ajlûn" in one volume.

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Early numbers of the *Quarterly Statement* are very rare. In order to make up complete sets, the Committee will be very glad to receive any of the following numbers:—

No. II, 1869; No. VII, 1870; No. III, 1871; January and April, 1872; January, 1883, and January, 1886.

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It having again been reported to the Committee that certain book hawkers are representing themselves as agents of the Society, the Committee have to caution subscribers and the public that they have no book hawkers in their employ, and that none of their works are sold by itinerant agents.

While desiring to give every publicity to proposed identifications and other theories advanced by officers of the Fund and contributors to the pages of the *Quarterly Statement*, the Committee wish it to be distinctly understood that by publishing them in the *Quarterly Statement* they neither sanction nor adopt them.

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Subscribers who do not receive the *Quarterly Statement* regularly are asked to send a note to the Secretary. Great care is taken to forward each number to all who are entitled to receive it, but changes of address and other causes give rise occasionally to omissions.

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The only authorised lecturers for the Society are—

The Rev. Thomas Harrison, F.R.G.S., Member of the Society of Biblical Archæology. Address: Rev. Thomas Harrison, Hillside, Benenden, Staplehurst, Kent. His subjects are as follows:—

(1) *Research and Discovery in the Holy Land.*
(2) *In the Track of the Israelites from Egypt to Canaan.*
(3) *Bible Scenes in the Light of Modern Science.*
(4) *Eastern Palestine.*
(5) *The Dead Sea and the Cities of the Plain.*

Professor Theodore F. Wright, Ph.D., Cambridge, Mass., Honorary General Secretary of the Palestine Exploration Fund for the United States. His subjects are as follows:—

(1) *The Building of Jerusalem.*
(2) *The Overthrow of Jerusalem.*
(3) *The Progress of the Palestine Exploration.*

Application for Lectures may be either addressed to the Secretary, 24, Hanover Square, W., or sent to the address of the Lecturers.

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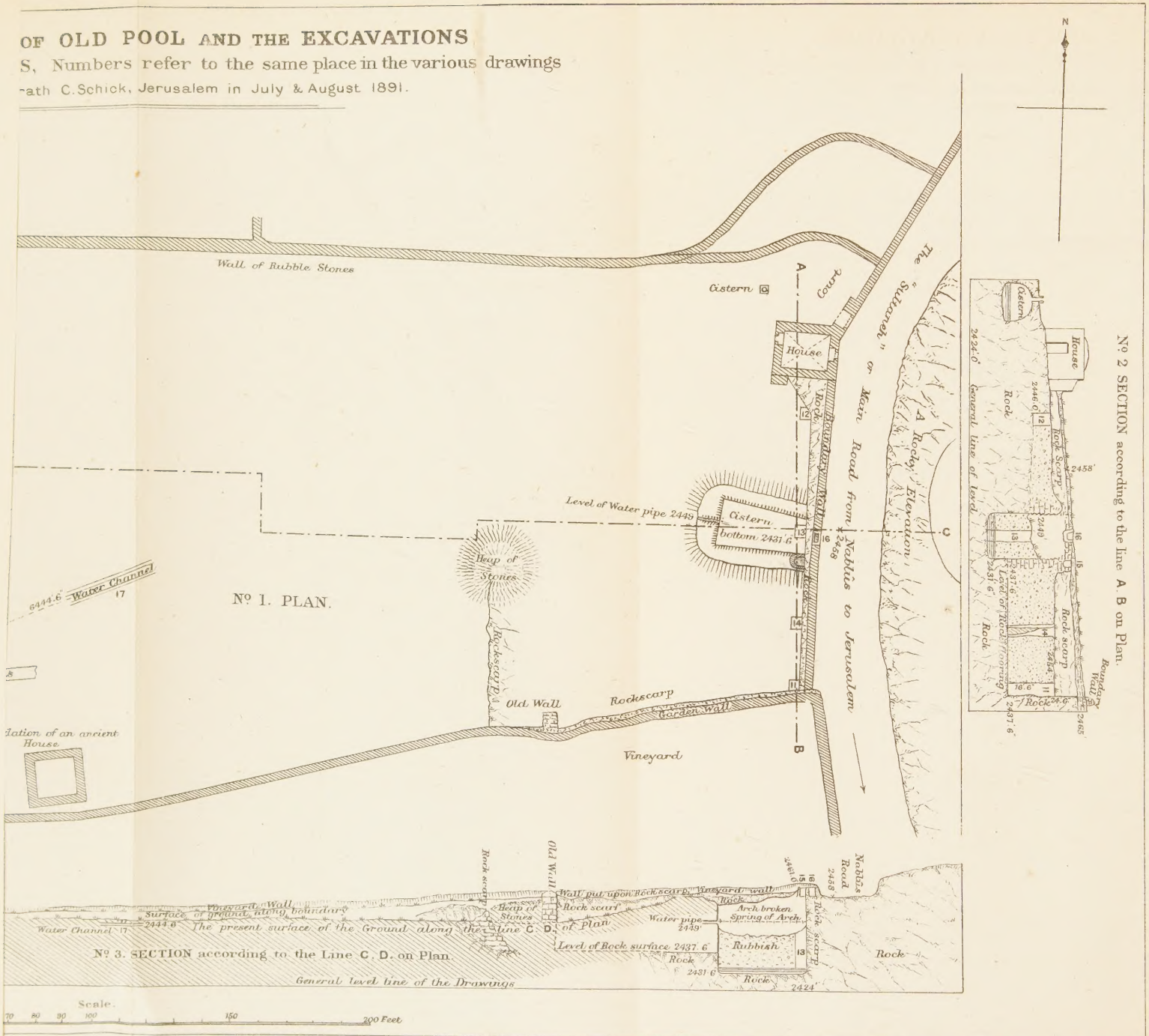
# OF OLD POOL AND THE EXCAVATIONS

S, Numbers refer to the same place in the various drawings

ath C. Schick, Jerusalem in July & August 1891.



# LETTERS FROM BAURATH C. SCHICK.

JERUSALEM, *August* 27, 1891.

## OLD POOL IN UPPER KEDRON VALLEY, OR "WÂDY EL JOZ."

A.—In the Bible "pools" are repeatedly mentioned as existing at Jerusalem, which were apparently the work of the Jewish kings. Pools in other cities also are mentioned, at Samaria, 1 Kings xxii, 38; at Hesbon, Song of Solomon vii, 4, &c. So we may judge that there were many, smaller or larger, pools throughout the land in all directions not mentioned in the Bible or other writings. In Jerusalem there are mentioned, 2 Kings xviii, 17, an "upper pool," which is mentioned also in Isaiah vii, 3; xxxvi, 2. If there were an "upper pool" it follows there must have been a "lower pool," which is really mentioned in Isaiah xxii, 9. According to 2 Kings xx, 20, King Hezekiah made a pool, distinct from the "upper" and "lower" pools; generally brought in connection with "Gihon," of which an upper and lower "outflow" are mentioned, *i.e.*, the modern "virgin's well" and the pool of Siloah. But it seems to me that 2 Kings xx, 20, implies that Hezekiah made a pool outside the town to gather the rain-water, which was then carried down to the city by a conduit, as is the case with the present "Birket Mamilla" west of the town, not like Siloah, &c.

Now, there is in the upper part of the Kedron valley, in the so-called "Wâdy el Jôz" (*see* Ordnance Survey map, scale $\frac{1}{1000}$), a place where two shallow valleys unite, one coming from the west from the watershed (south of Schneller's "Orphan Asylum") on the Jaffa road. The other from the north-west from the neighbourhood of the "Tombs of the Judges." Where these two valleys unite there is a kind of depression, in which in the rainy season a collection of water stands for a few weeks. Sir Charles Wilson and others have thought that this was once a *pool*, although not inserted as such in any plan or map of Jerusalem, nor mentioned in any ancient books. In the Ordnance Survey map, scale $\frac{1}{1000}$, it appears as a portion of *land* west of the "*ruin*" in "Wâdy el Jôz," at the Nablus road, and the elevation number "2,458." At this "ruin" Sir Charles Wilson made in 1865 some excavations. He writes in "Ordnance Survey of Jerusalem," 1865, on page 77, as follows:—

"*Excavation, No. XIII.*—This was made to try and discover the conduit which took the water of the pool near the tomb of the kings to the city, but failed in its object. A trench was dug along the face of the scarped rock at the eastern end next the road, as this seemed the most likely place to look for it. The bottom was reached in one place at a

depth of 33 feet 6 inches in an old cistern, where the exit of a conduit running down the valley would probably have been. Though the conduit was not discovered the excavation showed that the pool must have been of great extent."

As this point (the old cistern) is 400 feet distant from the centre of the depression where in winter the water is standing, it gave the idea that the pool must have been about 500 feet long. So the matter stood till recently.

In February last I got an order from the Palestine Exploration Fund Committee "to trace the aqueduct from the pool by the north road; when found, a very little excavation will show whether it ran to the Damascus Gate or to the modern St. Stephen's Gate."

To find the aqueduct certainly one must look for it at its starting point at the *pool*, and so I did. The accompanying plan and section will explain and illustrate what I have done, to which I wish to say :—Shaft No. 1 first was sunk on the eastern edge of the depression (or present pool, as it may be called) at a surface level 2,438 feet ; the bottom of the old pool was found at a depth of 8 feet 6 inches ; it consists of hard concrete of *hamra*, horizontal. A gallery was then begun eastward in order to find the east wall, but a very large stone was met with, so that we were obliged to give up the work, and begin it beyond this stone, where shaft No. 2, on higher ground, was made. Here we soon, only a few feet under the surface, came to the wall. We went down on its western side, finding the bottom at a depth of 14 feet, the floor declining very slightly towards the west. The wall itself is not exactly perpendicular, but 1½° declining (*i.e.*, on the top about 5 inches more east than on the bottom). So it was found also at other places. Finding here no opening or any mark of an aqueduct's mouth, we made a gallery northwards along the wall. After 16 feet a kind of *trough* cut into the rock was met ; it is 16 inches wide and 16 inches deep (*see* section 4) ; its bottom 14 inches deeper than the bottom of the pool. It runs at a right angle from the wall westwards for 4 feet. It was once arched over, and part of the arch was still standing, but immediately on the wall the arching was broken. When this was found I thought, *Now we have the aqueduct's mouth !* But there is no opening in the *wall* as I hoped ; it is built up in such a manner that one can hardly say whether there has once been a hole there or no. It is without cement, whereas the top (or outside) of the arching was once very well cemented. In order better to examine this region shaft No. 3 was made, but threw no further light on the matter, the bottom was found level and at the same depth. Then I thought to make shaft No. 4 on the *outside* of the wall, where perhaps the former opening might be still recognisable. The wall was found to be 8 feet 9 inches thick, and at a depth of from 6 to 7 feet we met the *rock* in its natural, uneven state, and had to give up the work here. So we made the shaft No. 5 west on the lower ground in the present pool, finding the bottom as in shaft No. 1, but nothing else. Then the Gallery "*b*" was made eastwards, when after 8 feet the vaulting, or

*jebeloneh*, (as the native called it) already mentioned was met with, going in a north-western direction. By destroying it we found it to consist of

The Jebeloneh.

Flooring.

small stones and bad mortar cemented properly *outside*, but no channel. Then Gallery "*c*" was made with the same result.

In order to examine the south-eastern corner of the (old) pool shaft No. 6a was made at the end of a wall of loose stones, hoping there to find some *masonry*. We came soon on the top of a strong wall, and clearing its top northwards, to find its edge, it proved to be the *southern* wall of the old pool, but running in an obtuse angle of 20°, the bottom in level 2,430 feet 6 inches. Now I thought it well to explore also the *northern* corner, so shaft No. 7 was made. No corner, but the bottom of the same structure as in the places mentioned hitherto was reached at 2,429 feet. Then a gallery was made northwards, and after 7½ feet the corner was met, a little rounded out, and the northern wall in a right angle with the eastern. Having found no *outlet* in the eastern wall nor in its corners, I thought it may perhaps be in the *northern* wall, so we laid the wall bare, there finding its top also cemented, but the outer edge broken, and going downward in a shaft, No. 8, found that there *was no watercourse*, but only rock. As I had no leave to dig on the *western* side of the pool (the ground belonging to another person) I could not examine the two other corners of the old pool, but this may be done after a little time, as the ground has since been sold to a building company. Before leaving this interesting pool I made a shaft No. 9, in its *centre*, finding the bottom nearly in the same level as in the other shafts. The bottom of the old pool was nearly level, declining slightly towards its north-eastern corner, and the surface of the present ground is the same.

By finding the east wall of this old pool it was proved that it never extended eastwards to the Nablus road. It was a much-reduced one, about 152 × 165 feet square and 14 feet deep. It had once a good parapet wall, the stones of which are now fallen into the pool, and were met with by us. In shaft No. 9 (middle of pool) we found only earth. I have also to mention that south-west of the pool, about 50 feet distant, is a ruin, which certainly was once in connection with this pool as a *guard-house;* it is near the old road (inserted in Ordnance Survey map $\frac{1}{10560}$) and consists of a cistern and a room over it, with a stair to go up on its top, fenced round about. There are, south and south-east of the pool, the foundations of similar buildings, but without cisterns, and long ago destroyed. North of the latter I found a conduit, No. 17, hewn into the rock in a level 2,444 feet 6 inches (much higher than the bottom of the pool), its object being to carry away the water coming down from west, and not letting it pass into the pool, but eastwards into the valley.

B.— From the eastern wall of the pool now described there extends for about 20 feet eastward, a higher, uninteresting, comparatively level

portion of ground, beyond which is the place in which Sir Charles Wilson made the above-mentioned excavations. Here might have been a *second* pool, so I made some shafts, &c., in order to find the levels for comparison with those of the pool. *See* Plan.

Shaft No. 11 was first made and the rock found 16½ feet from present surface, at a level of 2,437 feet 6 inches. The rock scarp, which is visible on the corner above ground, went nearly perpendicularly down, as an east and south wall, of 24½ feet high. Not any bit of concrete or cement could be detected; it was no pool. Then shaft No. 12 was made, the rock floor reached at a level of 2,446 feet, declining in a slope of two degrees south-westwards. Between the two points is situated the "old cistern" in which Sir C. Wilson once made a shaft, as related above. In order to bring uniformity in the matter, I resolved to make again a shaft, No. 13, in the great accumulation of *débris* in this cistern. At 13 feet we met *water*, which hindered the work, but beating down a rod of iron, I found the bottom to be at a level of about 2,431 feet 6 inches, or 26½ feet deeper than that of the 2,458 feet level, as given in Ordnance Survey map, a little north-east of the cistern in the road. As Sir C. Wilson gives in the above quoted 33 feet 6 inches, there seems to be a difference of 7 feet, so I think Sir C. Wilson measured from ground 7 feet higher, very likely from the top of the wall, at the south-eastern corner. A water-pipe comes into this (broken) old cistern in the western wall, at a level of 2,449 feet. On the top of the eastern wall is a broken "moosfay" or filter-pool, No. 15, and (No. 16) a broken "sebil" or water-drinking place, formerly for the use of passers-by. The other cistern, situated in a court to the north, and the ruined little house, have no archæological value. Opposite to this cistern, rock scarp, &c., on the west, at a distance of 110 feet, is another rock scarp, running parallel, visible only at its southern part, the northern part being buried under a heap of stones. Twenty feet east of it formerly ran a thick wall (of which a portion still remains in the south). Considering all this, it is clear that in this part there was once a kind of court, sunk into the rock, having on the east, south, and west sides rock walls, into which a stone wall was inserted, so as to form a kind of road to the court. As there is not a bit of *hamra*, or cementing, it certainly was no *pool* or place for keeping water, and as the Tombs of the Kings have a nearly similar court and passage cut in *rock*, I thought that perhaps this court was made for *Jewish tombs*, and made in consequence the shaft No. 14, in the hope of finding there the entrance to a mausoleum, but to my disappointment, found only a natural cleft in the rock full of small stones.

Very likely the new proprietor will dig near the south wall for foundations to new buildings, and tombs may then be found. In the neighbourhood round about are many rock-cut tombs, and a group of them, north of the pool, was discovered some years ago, of which I will report separately.

By all this searching and excavation no advance was made in tracing *the conduit*, of which I will now speak.

C. The conduit conducting the water from "Wâdy el Jôz" pool to the city. The question is, did this aqueduct come in by the Damascus or the St. Stephen's Gate? As matters stand I have to answer, *near Stephen's Gate*, either into the *Birket Israel*, into Bethesda, or direct to the Temple—which, I cannot decide. When the carriage road was made from the *Burj Laklak*, at the north-east corner of the present city, down to the Garden of Gethsemane, an aqueduct was cut through, just east of *Burj Laklak*, 325 feet distant, where the surface level of 2,425 feet goes through. The aqueduct is there 4 feet high, 2 feet $3\frac{1}{2}$ inches wide, with masonry walls on both sides, and covered with long, flat stones; its flooring is on a level 2,416 feet. It was levelled down from the bench mark on the *Burj Laklak*, but as this was done by my assistants there may be some slight mistake. The bottom of the pool is accordingly 2,430 feet, hence the decline, from the old pool, 14 feet, in a length of 5,000 to 5,500 feet, as certainly the aqueduct, following the contour of the ground will have larger and smaller curves. If this remainder is really a piece of the old aqueduct, connecting the "old pool" with the city, which I fully believe it is, then we know the aqueduct did not go as a tunnel through the rocks (except for short distances), but as an *open channel* partly hewn in the rock, partly formed of masonry, and covered with flat stones. Fourteen feet fall for such a distance is quite enough; the aqueduct from Solomon's Pool to Jerusalem has much less. The decline at the bottom of this aqueduct is, at the point where it can be seen, rather more than this, and if the whole length had the same it would come out even more. But all these old aqueducts are made with the decline sometimes more, sometimes less, and even sometimes level, as I found in the Siloah channels.

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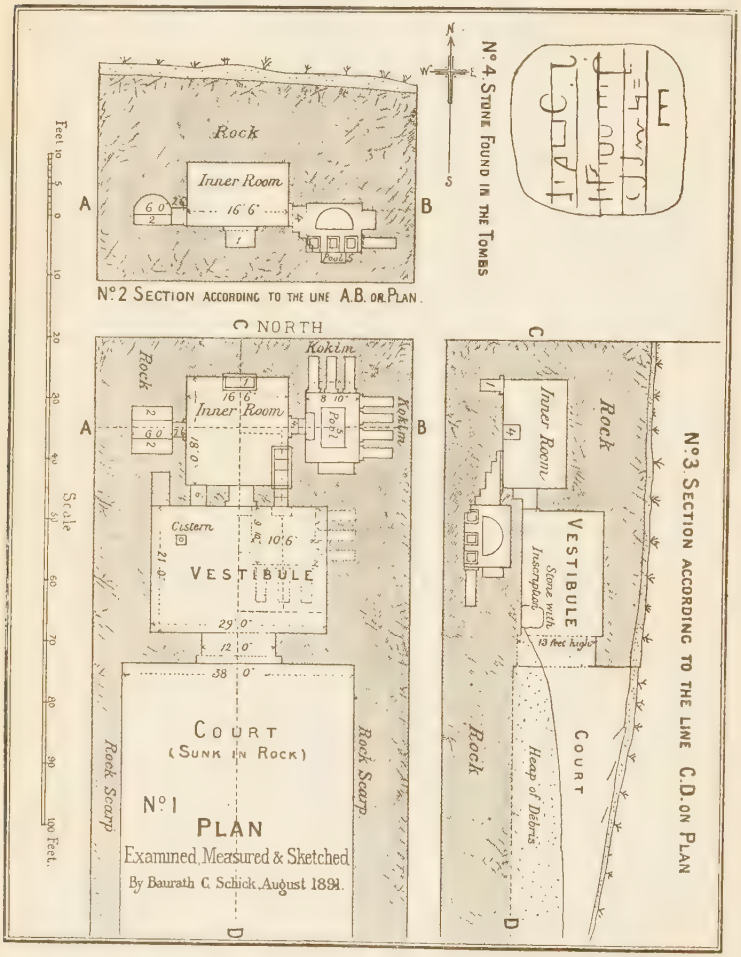
*September 2nd*, 1891.

### Remarkable Rock-Cut Tomb in "Wâdy el Jôz."

About ten or twelve years ago, a Moslem of Jerusalem enclosed with a dry wall a piece of ground and planted trees and vines there. In doing this he discovered a group of *rock-cut tombs*, which he showed, as occasion arose, to Europeans. I heard of it, but knowing that Dr. Guthe and other able travellers had visited the place, I did not think it my duty to go there. But when recently engaged with the excavations at the "old pool," in Wâdy el Jôz, I was invited by the man to see also *his* place, which I found rather remarkable, and as hitherto I have not seen any plans, or drawings, or description of it, I have measured it and prepared plans, &c., of which the following is an explanation and description. The place is now a vineyard, about 550 feet north of the "old pool," on the gentle northern slope of the Wâdy (the upper Kedron Valley). There is first a very long approach or court, 38 feet wide, cut into the rock; as the slope of the hill is gentle, a great length (more than 50 feet) was required to come in a horizontal line so deep that any large opening could be cut

into the rock-face. The entrance is 12 feet wide and 13 feet high, with a layer of rock over it 6 feet thick. There is now a great accumulation of earth there over which one has to step downwards, and so through this large opening into a vast ante-room or vestibule 21 feet feet wide, 29 long,




ROCK-CUT TOMB IN WÂDY EL JÔZ.

and 13 feet 8 inches high, with a smooth and evenly horizontal ceiling. On the floor is, towards the western side, and near the northern, the mouth of a cistern—but nothing else. In the middle and at the foot of the north wall there is a *door*, 3 feet 8 inches wide, and only 2 feet 9 inches

high. It has an excavated rim round about (like the large opening of the vestibule). If one goes through this low door northwards he has to go *down* 2 high steps, and comes into an inner room of smaller size, 18 feet long, 16½ feet wide, and 10 feet high. It is dimly lighted by the door and a kind of window, and in order to see well one must have a lighted candle. In the northern part of the floor is a sunk tomb, marked 1 in plan, having on its top a groove round about into which flagstones were put, and when this was carefully done, no one could recognise that there was a grave underneath. In the west wall is a little door leading to a small place with a stone (2) bench on each side, over which is an arch. These benches were for laying a dead body upon. The entrance could also be sealed up with a flagstone, put into the groove in an upright position. Opposite, in the *eastern* wall, there is a similar door (4) leading by four steps downwards into another small chamber, 8 feet 10 inches wide, by 11 feet 6 inches long, and 7 feet 10 inches high. On its floor there is a sunken pool 6 feet by 4 feet, and 2 feet 3 inches deep. On the southern side of the room there is a rock bench arched over for one dead body, and opposite, in the north wall, a similar one, but under it three *kokim*, as plan and section show. In the east wall, opposite the entrance, is also such a bench, and under it four *kokim*, so that ten dead bodies could be located in this chamber. Coming back into the larger room (not the vestibule), one sees on the east wall, towards the south, steps going downwards, the opening also surrounded by a groove to receive flagging stones, when it had to be closed. Going down, one comes into a similar small room 10 feet 6 inches long, 9 feet 10 inches wide, and 7 feet 4 inches high ; situated under the large room or vestibule, and shown in the plan only with *dotted* lines. It has on its west side a bench arched over, and on the south side also such a bench, and three *kokim* underneath, and the east side exactly similar. This chamber was adapted for nine bodies.

On looking to the Plan No. 1 it will be seen that this underground chamber takes up only the half of the vestibule space, in the other half there is now a *cistern ;* but I think there was originally also such a burial chamber as the window (*b*) indicates. There was a stair on the west side (like the one on the eastern) leading down into it, but when, in later time, it was wished to make a cistern, the tombs were partly destroyed, the recesses being filled up with masonry, and so the stairs disappeared, the rock over them being broken, in order to get a *window* for the inner room. All that I have described is *cut into the rock*, and very carefully done ; the workmanship is excellent, so that this tomb (to a certain degree) rivals the tombs of the kings. But no door-opening had a *movable door*, only flagging stones. I could also not find any ornament, but all is straight and plain.

In the vestibule there is now lying a stone—3 feet long and broad, and about 1 foot 3 inches thick, in figure not square and not round, but, say square, and the four corners, in a rough way, broken off. On one of its sides is a curious inscription, perhaps Cufic, or old Hebrew. Either the inscription was never carefully finished, or it was afterwards partly

destroyed. A squeeze cannot be made, as the surface is too uneven. I have copied it as well as I could, and give it here in one-tenth of its real size. The curiosity is, that there are five straight lines cut deeply into the surface, and the letters put into them, so very likely these lines form parts of the letters, as sometimes in Cufic writings. The people say this stone was found there when clearing the place. The late Mr. Schapira had seen it, as he put his name on it with oil paint, and the people say he wished to buy it, but before taking it away he went to Europe and came back no more.

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*September* 22*nd*, 1891.

1. The road to Bethlehem from the Jaffa gate, down the Wady Rahabi, and up again to the British Ophthalmic Institution, has been made wider, and so the western slope of the modern Mount Zion has been cut into. In the *débris* are found many pieces of pottery, from which I got some with engravings on them, of which I send you squeezes. To me they seem to be modern.

2. Further down, at the south end of the Sultan's Pool, and on the slope of Mount Zion, a *wall*, 13 feet thick, of large stones not bevelled, was found, going from the southern end of the Pool eastwards towards Bishop Gobat's School as far as the Aqueduct. At first I thought it might have been a stair, but closer examination showed it to have been simply a *wall*. Whether once connected with the Aqueduct, and the mound (or bridge) of the Pool, or with the fortification of the city, one cannot say. There are still three layers of large stones resting on rock, with two faces. Enclosed I give a copy of Ordnance Survey plan, $\frac{1}{2500}$ of this region, in which this piece of wall and the widening of the road are inserted in red.

3. Higher up, north of Bishop Gobat's School, also some diggings took place, by which a rock-cut cave was found, measuring 8 by 10 feet and $7\frac{1}{2}$ feet high, with an opening towards the west. The chief entrance to the cave was from the top on the east side. The situation is shown and marked with a little red square on the enclosed paper.

4. Inside the town the Sisters of Zion have bought an old Turkish house north of their institution at Ecce Homo Arch (on the north side of Via Dolorosa), and pulled it down. A large rock-cut passage was found, the one I cleared out in 1871, and hence no new discovery. But at the corner where it bends from the eastern to a southern direction in a sharp angle a small pool was discovered, cut into the rock, 6 by 8 feet wide, and 5 to 6 feet deep. Its use I could not understand, as it was *not* connected with the Aqueduct. Nor could I find any traces of cement, which would have proved it to have been once used for water. So I think it was simply a cellar.

*September 25th*, 1891..

Near the north-western corner of the city at the New Gate some excavations have been made by which some things of interest were discovered.

1. Inside the city, at one of the corners of the city wall, near the "Institution of the School Brethren," a place was thoroughly cleared in order to build a new house there. The rock was reached in some places about 9 feet below the surface, or about 2,496 feet above the sea; in some places deeper. There was found a walled and vaulted room 12 feet long from west to east, 9 feet wide from north to south, and about 8 feet inside high, of no special interest. In the middle of the place a threshold was met resting on rock, and behind it (westwards) a kind of room, partly hewn in the rock 8 feet 6 inches wide—the length I could not ascertain, owing to large stones having fallen there, but it seems it was not more than 10 feet. It had on the south side a window, between two large hewn stones. North of it were found two little cisterns cut into the rock, but now without a roof. They are 9 feet deep, and about 8 feet long, and 6 feet wide. East of them stands a large bevelled stone in an upright position; which had apparently been used in the restoration of former rooms.

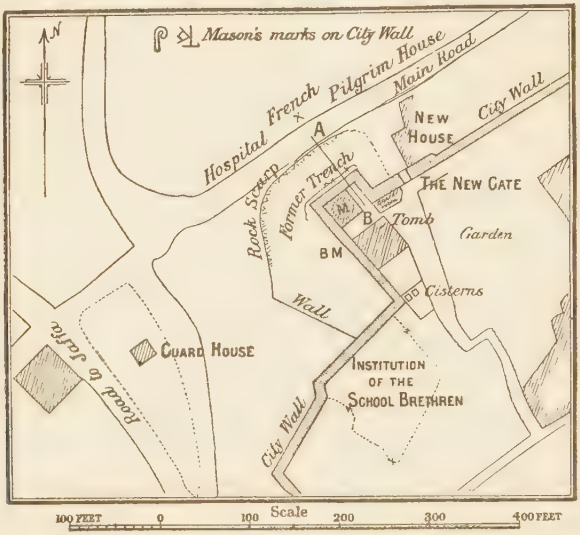
In themselves, these little rooms and cisterns are of no great interest, but being found here, as in other parts of the *old* city, they prove that even in remote times the city extended to here. From what I have seen in Jerusalem, it is clear that in ancient times the rooms of dwelling houses were *very small*, either hewn in the rock or built with masonry, and so it is with the cisterns. The large ones were public.

The *present* city wall which runs here, and forms an angle, is put on *débris* without proper foundations, and most probably was built by Suliman, A.D. 1537. At that time also the mosque (M on plan) in the corner was built, and the other buildings near. In one is a Mohamedan tomb. Outside of them I found mason's work, and also some remarkable stones (used again), one having on its face a half pillar, the other with a groove which might take up the half pillar, thus:

Now put in the wall thus:

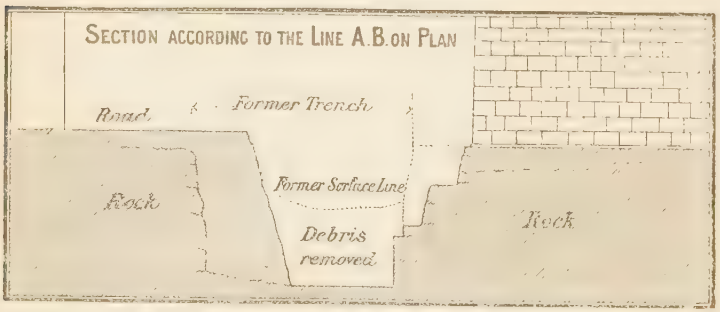
2. *Outside the wall*, between the corner tower (with its mosque) and the French Hospital and Pilgrim House, the former *ditch* has been cleared by its proprietor, a French gentleman. Its rock bottom was met at the level of 2,556 feet above sea.

Towards the north, the rock on which the tower stands falls down in several steps, as the Section shows. The lower steps are original, but the upper ones became in later time (by breaking away stones) of a different




NORTH-WEST CORNER OF CITY.

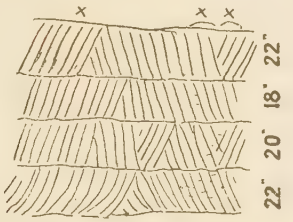
shape from before, which I think was as pointed out with a dotted line (in Section). The most remarkable part is the *lowest* step ; its face showing rather strange chisel markings (*see* sketch). Mr. Flinders Petrie speaks in his Tell Hesy Book, page 36, of "*flaking*" and "*pocking*," but I do not




quite comprehend what he really means by these words, in regard of chisel marks. He gives them as "*Phœnician*" –hence very remote—and on this rock he would find, as I think, "flaking" and "pocking,"

together with *long strokes*, of which he speaks on the same page—which he calls also "certainly early work." If my assumption is correct, then will these *tool marks* on the rock in the ditch *prove* that, even in such a remote time, the town came up as far as here. To enable others, more competent than myself, to decide upon those chisel marks, I will describe them.

They are nearly *straight* strokes *exactly parallel*, and ⅝ inch distant one from the other, *vertical*, but to some degree sloping, and sometimes forming a slight curve, so that one row of them meets another at a sharp angle (*see* the form given on sketch). They are not deep, but from 15




SKETCH SHEWING CHISEL STROKES ON THE ROCK SCARP.

to 18 inches long, and so arranged as to form *layers* one above the other. Between the lower end of the strokes of the upper layer, and the top end of the strokes of the lower layer, is a nearly horizontal rib left. I counted five layers, making up a height of nearly 8 feet. At the rounded corner of the rock are only *such* strokes or chisel marks as here described —but more to the west, where the rock forms a kind of recess, there are, besides such strokes or chisel marks, many other *pointed* marks, dotted over the whole, which I think Mr. F. Petrie calls "*pocking*." In the squeezes these latter are better visible than the long strokes, which do not come well out, as they are not deep, and yet the surface, on the whole, is very uneven. But to the *eye* they are, on the rock, strikingly visible, even differing in colour; as the stroke mark itself is whiter than those parts which were broken off by the stroke.

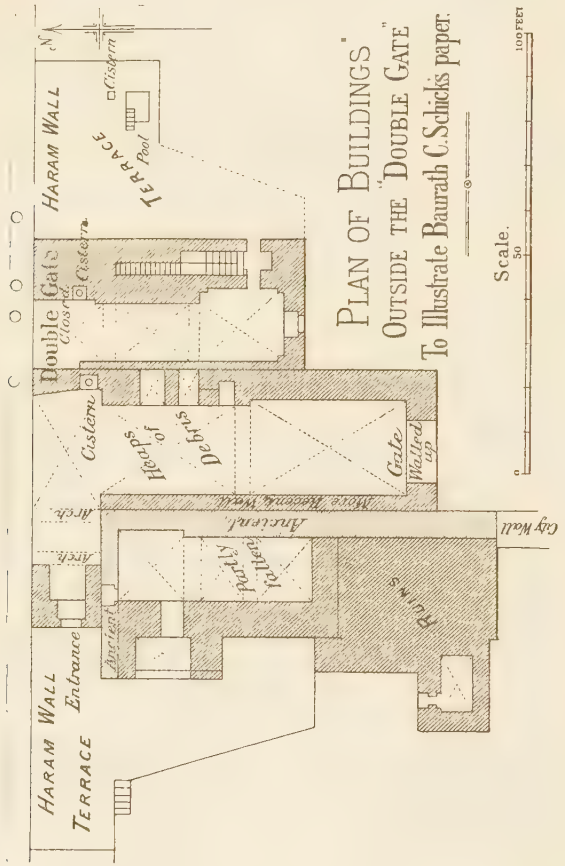
The proprietor of the ground said he also tried to make squeezes, but they do not come out well on account of the chisel-marks being not deep enough, only the dotted.

*November* 10*th*, 1891.

THE BUILDINGS SOUTH OF THE "DOUBLE GATE."

In the *Quarterly Statement* of this year, page 320, certain information respecting these ruins is asked by the Rev. G. O. Ray. I have since visited the spot again and made a plan of it, which I now send.

Dr. T. Tobler, in the spring of 1846, visited this place, and described it in his book "Topographie von Jerusalem," Berlin, 1853, I Vol. page 490 to 494, and when I read this account I went with a friend to the spot, and we could see by daylight and with leisure all that is to be seen there, only to the "double gate" we could not go, as the hole was closed with stones. Later, in 1872, when I made a model of the Haram es




Sherif, to be sent to the Vienna Exhibition in 1873, I went often to the Haram to measure there, and also into this projecting building. The Director of the Austrian Hospiz of that time, the Rev. G. Gatt (now Roman Catholic Missionary at Gaza), wrote, in 1875, a book on Jerusalem "Beschreibung Jerusalem und seine Umgebung," Waldsee, Carl Liebel, 1877. In it he describes this building, page 105, at some length,

mentioning several things which I had not observed, so I went again there, but found his description somewhat obscure, and in a way as if there was formerly not only a double gate, as now, but a triple gate ; which apparently was *not* the case. The stones (large and bevelled ones) of the Haram wall can be seen there, and also that they are still *in situ*, but no door or breakage in the lines of the stone courses can be seen, except a water-spout which is cut into the stones from top to bottom of seven layers. From the Khatuniyeh garden, a person going eastward, near the Haram wall, comes to a flight of steps, at the top of which is a somewhat large terrace or platform, on which the main buildings are standing. South of this terrace the buildings are *ruined*, and without shape, except one little room which is inhabited (*see* plan). At the middle of the platform one could formerly go eastwards between two grand piers, and then through an arched *doorway* into a larger vaulted room, which has towards the south also a door, but there the vault is broken, and further on are only ruins. Going back again to the terrace, and then northwards, one comes to the (more) Northern Gate, close to the Haram wall. The gate is now locked, and the inside used as a magazine, and at the same time as a stable, for I found horses there. Only an old woman being at home, she for a small *bakshish* opened the gate for me ; but I found nothing which I did not know before. The largest stones are where I have marked them on the plan as "ancient." I could easily recognise three different kinds of masonry ; that is to say, some the remains of the *original building ;* then masonry of quite another time, but also of finely dressed stones, only not so large, and without any bevel, which I consider to be Byzantine ; and then the third kind, more modern, very likely Mohammedan, or some Crusading and some early Mohammedan.

At the last restoration some of the walls (as may be seen on the plan), were made thicker by adding a side wall, and a vaulted chamber 85 feet long, nearly 20 feet wide, and 24 feet high, was formed there. On its floor a heap of filth and rubbish now lies. There is in the east wall of this chamber the mouth of a cistern and the recess is covered with a *pointed* arch ; more to the south of the same wall, which is 8 feet 4 inches thick, are three arched openings closed on the eastern side by a thin wall, through which if an opening were made one might pass into the chamber entered by the Rev. G. Octavius Wray. The large white marble slabs "beautifully carved with Arabesque or Jewish tracery, which had probably formed part of a cornice," mentioned by him, are probably those now in another vault, at the northern end of the *double passage*, just before the stairs begin. Concerning these marbles, some were utilised in the repairs of the buildings of the Aksa and Sakhrah, whilst others were removed *from* these buildings and from other places as being no longer wanted, so there is always a lot of such marbles in these dark vaults, and no mystery connected with them.

There are a few other points which deserve attention. Near the window of the eastern part of the "double gate," and *outside* the wall,

is an ornamentation often shown in drawings and photographs with the title "Hulda gate." This ornamentation, forming richly decorated low arches, is also seen *inside* the building. Over the eastern pillar of the western gate it is now hidden by plaster, but its *western* end is seen perfectly preserved on the Haram wall at the corner of the middle of the three long vaults (*see* plan and elevation). In the elevation I have restored the two arches: it is an ornamental casing outside of the two large lintels over the doors.[1]

Originally there was along the Haram wall, a tunnel-like *passage* 15 feet 4 inches wide, as an examination of the building with the breakages in the walls and a glance at the plan will show. *Under* this passage are cisterns, their mouths situated near the southern wall. This passage was formerly for the greater part uncovered and existed already in the time of the Temple, and I cannot help thinking that the "Khatuniyeh" with its very ancient walls in the east and south, may be the celebrated "Millo" of Scripture, separated from the Temple by this passage, and connected with it by a bridge. Hereabout we may one day find the tombs of a few *Jewish kings* who were not buried in the so-called "Kings' tombs" (compare Ezekiel xliii, 7-9; 2 Kings xii, 20; 1 Kings xi, 27; 2 Kings xxiii, 30; 2 Kings xxi, 26). The garden of Uzza was certainly near the King's house (the Aksa and structures eastward of it now perhaps occupying its place), and the "house Millo," 2 Kings xii, 20, was a palace standing on the Embankment of Millo, which embankment closed the Tyropean Valley, and so protected the "City of David" towards the *north*.—1 Kings xi, 27.

It is remarkable that a line drawn north and south through the centre of the Aksa Mosque falls when prolonged exactly into the middle of the middle and longest of the three vaults. This is also shown by M. de Vogue in his book "Les Eglises de la Terre Sainte," Paris, 1860, p. 279, and I cannot help thinking that in this building, outside of the wall, at the double gate, *we have the substructions of the Emperor Justinian's Church*, built in "honour of the Virgin"—described by Procopius, *see* Palestine Pilgrims' Text Society's Book—the "Buildings of Justinian"—London, 1888, where at page 138 I read that the houses (of Jerusalem) were built either on hills or upon flat and open ground, but not so this church; "The Emperor ordered it to be built upon the highest of the hills," and gave its size both in length and width. For this the hill had not room enough, "but a fourth part of the church towards the south and east" (that the substructions under the Aksa, and Solomon's Stables had to be restored seems meant by this) "in which the priests perform the sacred mysteries, was left with no ground upon which to rest," so "they laid foundations at the extremity of the flat ground" (the Haram Area) "and constructed a building rising to the same height as the hill." (This is exactly the case with the buildings south of the double gate.) "When it reached the summit, they placed vaults upon the walls and joined this

[1] *See* "Ordnance Survey of Jerusalem," Notes, page 39.

building to the other foundations of the church" (the Haram Area), "so that this church in one place is built upon a firm rock" (the Haram basement), "and in another place is suspended in the air—for the power of the Emperor had added another portion to the original hill." All this is exactly the case with this building in question, and what Procopius further says on the large stones refers to the old basement of the Haram Area. According to the late Mr. Fergusson, the stones used by Justinian were smooth and of an ordinary size, and just so, they are in the said buildings. So I have not the least doubt that we have, in this foundation, that made by Justinian, and am only wondering that for such a long time it was overlooked. The Aksa from the south wall to the cloister in north (but without including the latter) is 245 feet long ; a fourth of this will be 61 feet 3 inches, which is the length of the projecting building, without the prolongation of the middle vault. When the passage along the Haram wall, of which I have already spoken, was *open*, *i.e.*, not closed by any cross walls as it is now, the church appeared to stand in "the air."

In the above explanation I have, I think, answered most of the Rev. G. Octavius Wray's questions, in *Quarterly Statement*, 1891, p. 321.

As to the enquiry whether the marble blocks formed part of the building to which the pillars belonged which are described in *Quarterly Statement*, for 1871, p. 176, I have to say, that the pillars mentioned in the passage quoted standing in the so-called "Mosque of Omar" were utilised as old materials when the "Mosque of Omar," which is comparatively modern, was built ; to what building they belonged before, one cannot say. Their present basement certainly did formerly not belong to *them*, and so it seems to be with their capitals. The marble pieces spoken of, first called "slabs," by Dr. Wray, and at the end, "blocks," are of various kinds and sizes, which is already indicated by the writer calling them "slabs" and "blocks." I know that some of them were used again recently, and one cannot say that they all belonged to a *distinct* building. From the *Mimbar es Saïf* some stones and slabs were removed, and replaced by modern marble slabs, the workmen not being able to restore the old forms, or not considering them necessary. And so it was done in some places even in the Dome of the Rock.

To answer the *first* question respecting jealousy on the part of the Moslem guide, a somewhat lengthy explanation is needed. There is certainly no *mystery* behind ; even in much smaller things one *may* and *must* often make the same experience. In the first place, Christians must remember that the strict Moslem having himself no interest in ancient things, cannot understand how we can care for them, except there be some treasure hidden ; moreover, he believes that for a European and Christian to go to a place where he has no right to go, or to touch things which he ought not to touch, will certainly have some evil result, or may be connected with some sorcery or witchcraft, especially in a *dark* place where the *Jins* are lodging. Now it was allowed from higher quarters, that respectable Christians may come into the Haram es Sherif and see there the places in general, the Dome of the Rock, the Aksa, Solomon's

Stables, and for a time also the "Golden Gate." These therefore the guardian might show to Christians, but to allow them to see anything else or to go elsewhere, is *not* in the order. Also when anyone wishes to go and see a place except at the time of the regular tour, the guide will object, fearing bad consequences of some kind. Thus, for instance, travellers, even although expressly wishing it, are not brought to the Mosque of the Prophet, which is underground, near the wailing place of the Jews, and where there is the ring to which the Prophet tied the animal "Burak," on which he made the heavenly journey, and are not allowed to go up to the *roofs* of the large mosques. Only a good *bakshish* had the effect one day, when I was with Mr. Alex. B. M'Gregor, of Glasgow, at the Haram, of obtaining permission for him to go up on the roof of the Sakhrah. The "Golden Gate" was formerly, without difficulty, shown to travellers, but no more now for several years. Even one day, when I acted as guide to the Grand Duke Sergius of Russia, the Pasha being with us said, "We cannot go there," and when the Grand Duke persisted in going, the Pasha said, "Well! but the risk will be upon *me*." All this arises from the wish that Europeans shall not see and know everything. Many years ago, when one day examining the platform on which the Sakhrah stands, I found a walled-up door, and two windows, which could be easily opened and what was inside be examined. I spoke to the man who had charge of the repairs, and he promised to open the place for me, when they came with their work there; but when after six weeks I went there again, it was not only not opened, but covered with a large heap of rubbish which the moment I had made the suggestion to open they had ordered to be thrown there.

## Chisel Marks in the Cotton Grotto at Jerusalem.

The entrance to this large grotto is furnished with an iron door, which on going there I found to be locked. Making enquiry for the key at the Municipality, I was told that it was in the keeping of the man who has charge of the petroleum, which is stored in a new building outside Damascus gate. As the Executive Committee wished me to examine the chisel marks there, I went with a few men and the necessary things for lighting up the inside, and very carefully examined the various chisel marks. In the first place I have to say that I found none like those in the ditch at the north-west corner of the city, of which I reported in one of my former letters.[1] Then in the cave the rock face has been much blackened by the many visitors who often had torches, or by fires, which prevents the chisel works being everywhere seen; also the rock is written over everywhere by names of visitors, and touched with their hands, many pieces being broken off, so that not many places can be found where the chisel marks can be seen in their original state, and good

[1] *See* page 19.

squeezes made. Further, the chisel marks are of various kinds, and not in regular order, as shown on Fig. 1. But it can be seen in the grooves, of which I give in Figs. 2 and 3 a view and section in full size, that the chisel with which the strokes were made was $\frac{3}{4}$ inch broad. It must have

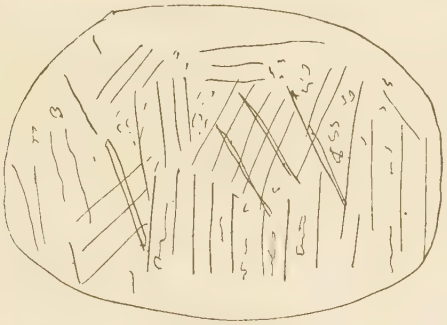


FIG. 1.

had some length, and a short wooden handle, the labourer working kneeling or sitting in the native manner. The handle was at most 2 feet long, as can be ascertained by the curve lines of the strokes in the grooves.

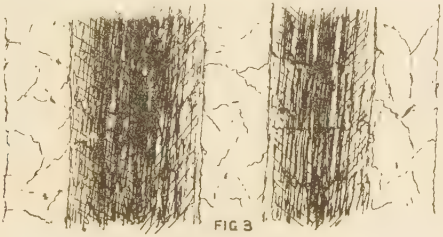
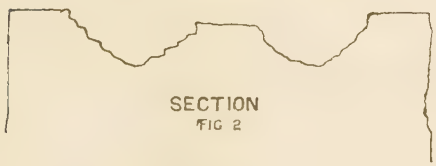


FIG 3

(Reduced.)




(Reduced.)

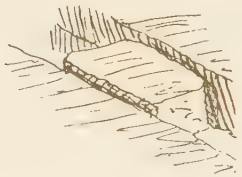
I made several squeezes, but they did not come out well, so I send only one. I have written with pencil "deep" in the groove, and "high" in the shoulders. Very long and straight strokes I could not find; they are all short, and in many places the marks look merely like "pocking."

# NOTE ON THE CHISEL MARKS ON ROCK DESCRIBED BY HERR SCHICK.

By W. M. Flinders Petrie.

The long strokes which Herr Schick figures (p. 19) are clearly not "long-stroke work," as that is used for the final facing of masonry. These strokes,

in layers 18 to 22 inches high, are the quarryman's work in cutting out



stone by picking a groove, and then breaking out the block left. Such was the mode of quarrying in the Cotton Grotto and in Egypt.

The "long-stroke" dressing is very fine, on the Beit el Khulil it is invisible except with a slanting light. The strokes are not in regular levels as above (each level marking a batch of stone removed), but

irregularly all over the surface in various directions, just as the trimmer moved his position.

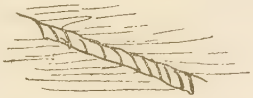
The "pock-marking" is used regularly and evenly all over a face to

reduce the surface—the blows bruising away the stone. There seems to be some amount of pocking on the one squeeze.

As to squeezes, it is best to wet the stone thoroughly first, and then to beat on the soaked paper with a brush until it is entirely pulped and

broken away from the prominent points, if deep. Then a second sheet well wetted and beaten on until the prominences just begin to break through, will unite with the first and hold it all together when dry. There is no harm in losing the extreme prominences as they are always most worn and weathered. What is needed is to have a full impression of the hollows, which show the cutting most definitely, and are not worn at all. The best brush is that used for cleaning carriage wheels, all bristles, as it is narrow enough to get sufficient force on the surface beaten, and can be used one end dry for dusting and holding by, and one wet for beating and washing. It is hard work to do a good squeeze, and two square feet is as much as can be done without a rest for the arm, which soon becomes exhausted. It needs a peculiar stroke, exactly square with the stone, and not dragging either way, or the paper is soon broken. Of course the paper should be left on till dry if possible, when it can be dragged off; but if the stone is rough, and the squeeze good, it holds pretty tightly by keying in.

I may as well explain the quarrying more. A trench is cut in the



ground by picking out; each time the workman takes a fresh start at the top, and cuts down, he leaves a slight ledge or line on the side, these lines are about 1 to 2 inches apart, as that is the depth he picks out at one time. These lines are generally curved slightly, and produce a sort of

pattern. The depth of one batch of lines is the depth of the block of stone cut out by one groove. Then if he turns and works from the other end, the lines run opposite. The height of each row, or depth of the groove of

cutting, is decided by the length of the pick handle and power of the workman. It is usually 18 to 30 inches. There are ceilings cut out in this way in the quarries in Egypt.

# THE TOMB-CUTTERS' CUBITS AT JERUSALEM.

By W. M. Flinders Petrie.

The accompanying five plates are not intended for plans of the tombs there named, as many other details should be shown in a proper publication of these tombs for study. These outlines are only records of measurements, which were made with a view to examining the subject of the cubits; and hence the details of the forms and positions of the loculi, the relations of the chambers one to another, and the elevations of the tombs are necessarily omitted. The actual measurements were made in centimetres, and are, therefore, not exact to nearer than about $\frac{1}{4}$ inch. ROMANS.

It is not possible here to enter on the principles of the whole subject of meteorological study; and hence I shall not attempt to repeat, either here or in future, the statement of the methods and details, which can be seen in brief in the "Encyclopædia Britannica" (*Weights and Measures*). All that need be done here is to show how a definite and certain result can be attained from a mass of material such as is here published, and what the results are which may be here reached.

Firstly, we should begin without any preconceived theories, or any attempt to find certain known cubits in these dimensions, as there is enough material here for us to deal with it quite impartially by induction. Secondly, we may set aside all the minor dimensions of doorways, loculi, &c., as being too liable to be influenced by mere considerations of convenience. We should only deal here with whole dimensions of chambers. Thirdly, in case of dimensions evidently intended to be alike, as opposite sides of a chamber, or sides of a square chamber, the mean of the similar lengths will be stated. Fourthly, we must be ready to find that some chambers of a tomb may have been cut by a different cubit to that used in working later parts of the same tomb; in two cases such differences occur, and tombs VII and VIII are each of two periods, denoted by A and B here.

As probably many of these tombs were cut by workmen using the same cubit, we ought to find similar dimensions recurring in them. The first step is then to look for repetitions of one dimension. We soon see that rather over 110 and 220 inches are very common lengths. Denoting the tombs by the Roman numerals, we see in I, 225·6, 116·8 inches; II, 112·2; III, 115·6; IV, 113·2; VI, 115·8; VII B, 111·5; VIII B, 114·0; XI, 114·6; XIII, 222·6; XIV, 113·0; XXVIII, 113·6; XXXV, 114·4; XXXVIII, 113·2, 223·5; XL, 227·7. Here it is evident that we have a main dimension repeated continually. But we do not know how many cubits are contained in 113 inches. To find this we must look over the other dimensions of these same tombs for other recurring lengths. We

find one group in I, 88·4; II, 87·8; III, 88·1. Another, in XXXV, 131·3; XXXVIII, 132·6. Another, I, 161·8; XXXV, 160·9; XXXVIII, 157·3; XL, 158·7. Another, XI, 170·9; XL, 172·4, 172·5. We thus have lengths of about

88·1, 113·0, 132·0, 159·7, 171·9 and 226 inches,

all pretty certainly even numbers of the same cubit. And it is therefore seen that the multiples

4, 5, 6, 7, $7\frac{1}{2}$ and 10 cubits

are the numbers in question, as we thus reach

22·0, 22·6, 22·0, 22·8, 22·9, 22·6 inches

for the cubit.

The next step is to search over all the other tombs (in which the 113-inch length does not occur), to see where the other multiples of this cubit recur. In this way we finally separate from all the others the following tombs, as being all cut in terms of the 22-inch cubit:—I, II, III, IV, VI, VII B, VIII B, XI, XII, XIII, XIV, XXI, XXIII, XXIV, XXV, XXVI, XXVII, XXVIII, XXIX, XXXV, XXXVI, XXXVIII, XXXIX, XL. And, adding together all the lengths in these tombs, and dividing them by the number of cubits, we reach an average of

**22·61 ± ·03 inches**

as the mean cubit. That is to say, the true value is as likely to be between 22·58 and 22·64 as to be beyond those limits. And this cubit was far the commonest, as it is used in more than half the tombs.

Taking now the residue of the tombs, we again search for recurring quantities, and note the following. In X, 122·1; XVII, 122·5; XXII, 125·6; XXXII, 124·3; XXXIX, 244·0.

Taking the other dimensions of these same tombs, we have altogether 82·1, 93·8, 124, 194·3, 206·3, 244·0, 515·8 inches; and these stand to one another in the ratio—

4, $4\frac{1}{2}$, 6, 9, 10, 12, 25,

which are thus the numbers of cubits in these lengths. Seeing this result, we add also XV, 102·4, as being half of 206·31.

Adding together the dimensions of these tombs, and dividing by the number of cubits, we reach an average of

**20·57 ± ·04 inches.**

Taking next the "Tombs of the Kings," the dimensions of which do not recur elsewhere, we have lengths of

140·3, 158·9, 166·5, 178·4, 233·8, 296·6, 356·2, 463·2,

and these are in the ratios of

12 $13\frac{1}{2}$ 14 15 20 25 30 40.

Adding the dimensions, and dividing by these numbers, we find a foot of

**11·77 ± ·04 inches.**

We next see recurring dimensions in V, 191·5; and VIII A, 190·1: and in the same tombs V, 105·2; and VIII A, 103·8. The dimensions of these tombs are

95·0, 103·8, 190·1, 241·3, 285·4, 383·2
105·5, 191·5,

which are in the ratios of

8 9 16 20 24 32

whence the average is

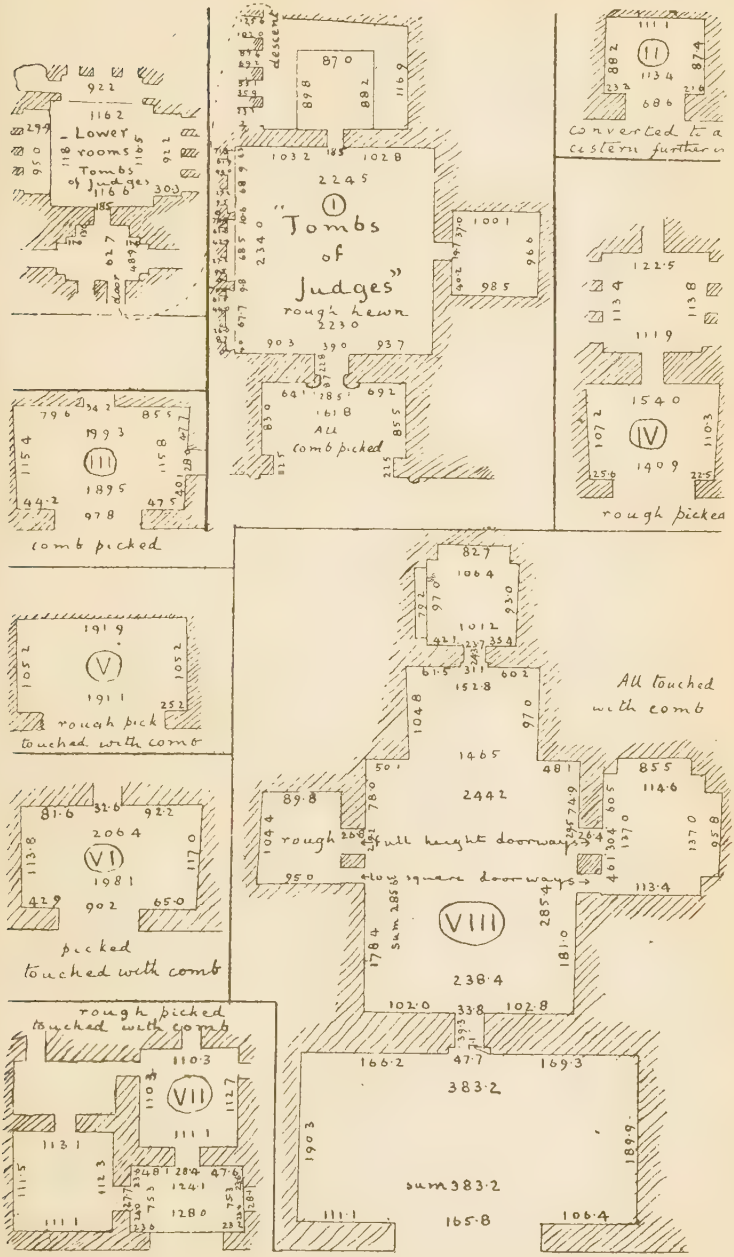
**11·90 ± ·04 inches.**

Of the remaining nine tombs there are but few dimensions. In IX, is 98·9; and in XXXI, 99·9; which may be the same. In XVIII is 152·4, and in XX is 152·8, probably the same. The first chamber of VII, called here VII A, is 75·3 and 126·0; the ratio suggests 3 and 5 cubits of **25·25 ± ·05.**

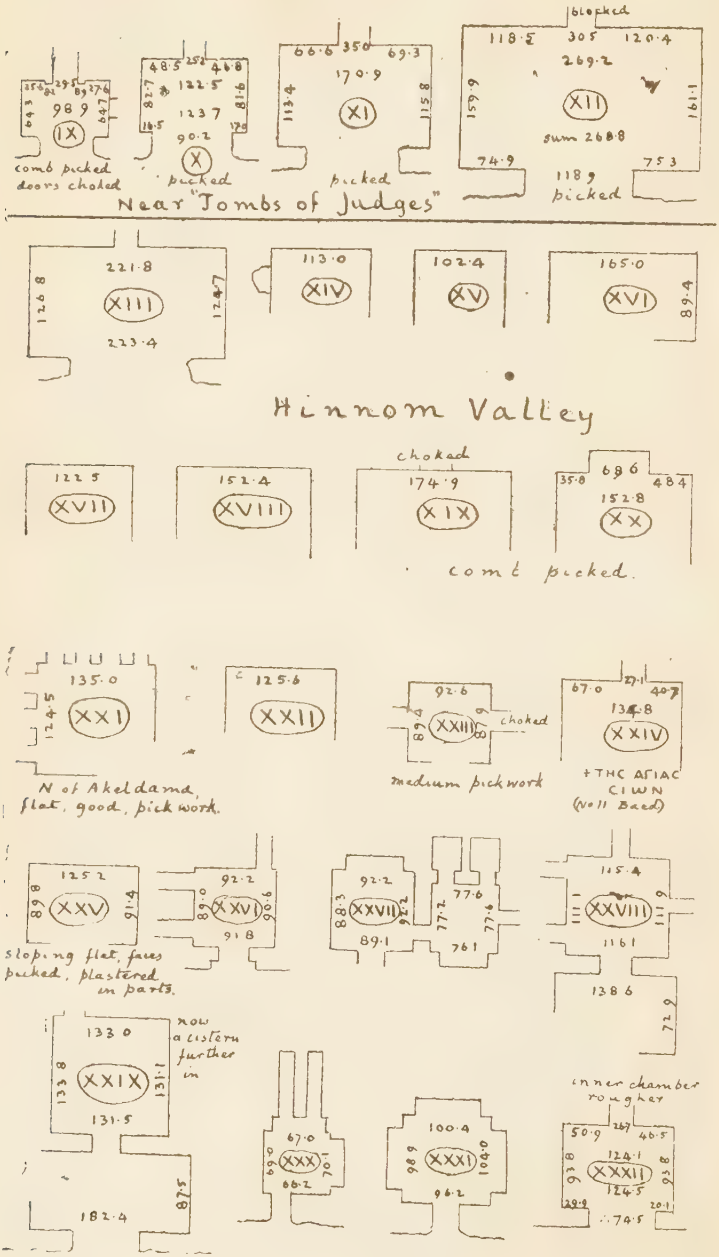
The few dimensions left are so scanty that no result can be safely drawn from them.

We will now compare the results with those already known. Twenty-four tombs were cut with a cubit of 22·6. This appears to be the Phœnician cubit: at Carthage, 22·3, perhaps in Sardinia as 22·1, in the Hauran as 22·2. But this new determination of it is of better value than any of the others, and nearer to its original home; and it should therefore be taken as the standard in future. Six tombs show 20·57 inches, which is the regular Egyptian cubit, varying from 20·5 to 20·7. The "Tombs of the Kings" were cut with a foot of 11·77 inches, which is pretty certainly the Roman foot of 11·6, or in the provinces, 11·7. And this agrees with their probably Roman age. Two other tombs may perhaps be on a rather longer form of the same. And only one chamber of one tomb would indicate the cubit of 25·2 inches, which there is some reason to regard as the old Jewish cubit. The broad result is that,—at least in the later ages such as the Greek and Roman times, to which these tombs mostly belong the Egyptian and Phœnician measures predominated in use; and their amounts must be taken into account in any study of the literary statements that remain to us.

I.—Tombs by "Tombs of Judges."
1 : 100.

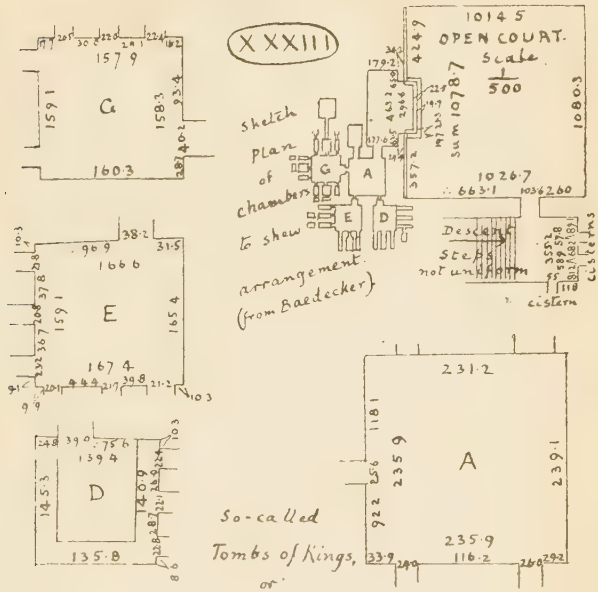


II.—Tombs in Valley of Hinnom.
1 : 100.

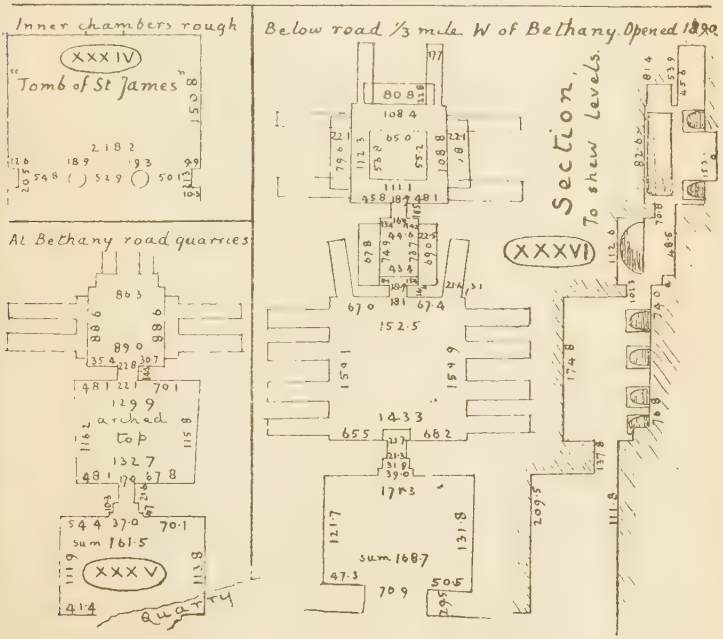


## III.—Tombs North and East of Jerusalem.

1 : 100.

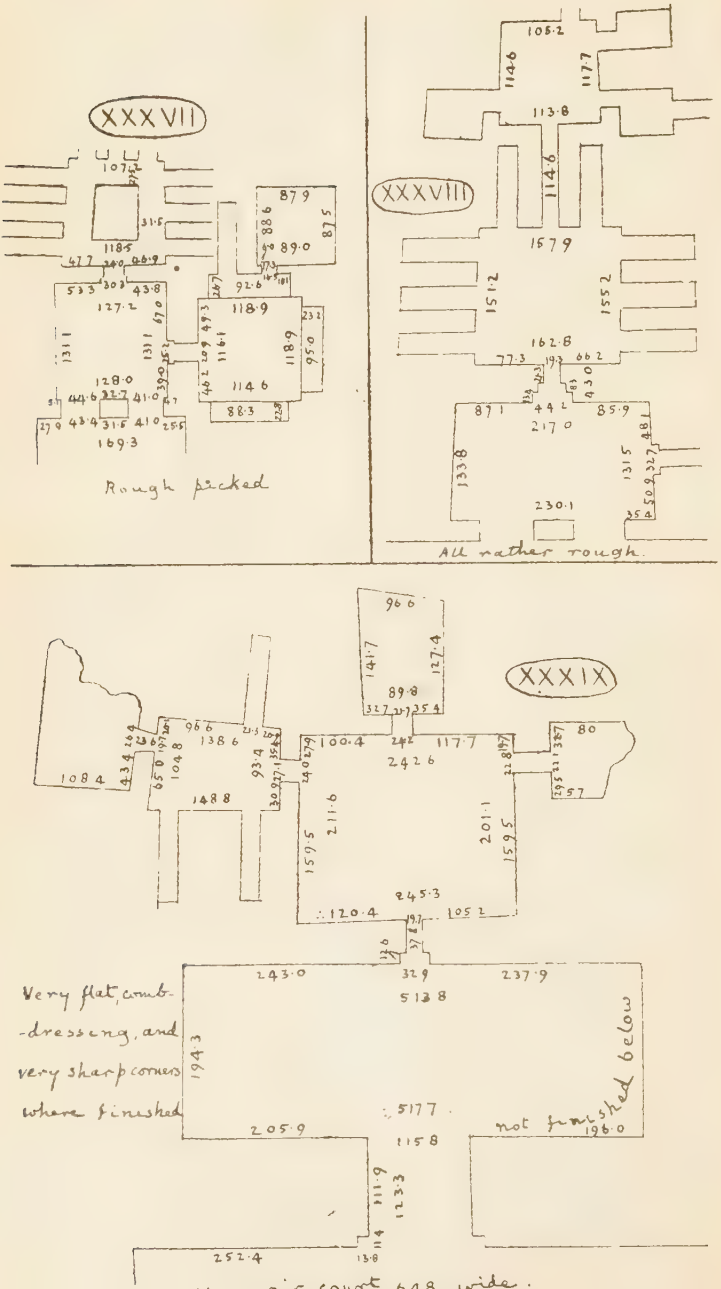



Court and chambers of Tomb of Helena? [60 A.D.]



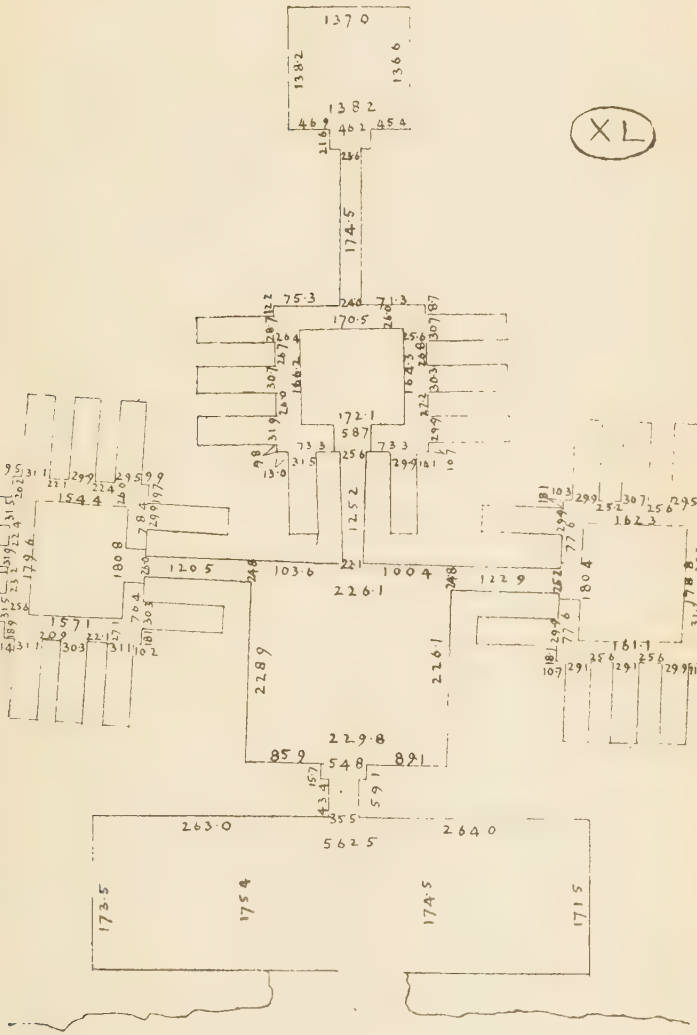
## IV.—Tombs in Kedron Valley.

1 : 100.



## V.—Tomb in Kedron Valley.

1 : 100.



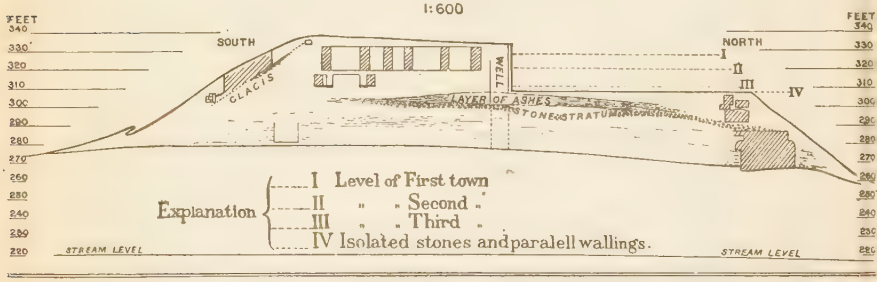

In outer court, walls very flat, maximum curvature, $\frac{1}{4}$ inch. Dressed by close picking, with $\frac{3}{8}$-inch pick, touched with comb-pick. Corners sharply finished. Loculi, 90 long.

# NOTES FROM TELL EL HESY.

By Frederick Jones Bliss, B.A.

Pending the full report, which cannot of course be drawn up until the end of the season, I am, under date of December 1st, jotting down a few random notes relative to our fortunes this autumn. Perhaps in this country it is better not to allow for delay, because some extra delay over and above one's calculations always must creep in. I left Beirût September 22nd, but, owing to calculated and uncalculated delays, Gaza was not reached until October 7th. The land journey is long and tedious, so I hired a sail boat, and leaving about noon we arrived at the landing beach at dusk. Our captain was the second of a family of boatmen in Cook's service, the elder brother, Suleiman, is the man who saved so many lives from the Russian wreck last spring, and is as modest as he is brave. His rigid total abstinence extends even to tobacco and coffee. His one idea is to see his brothers settled honourably and soberly in life. Finding camels on the beach, we easily transported our luggage to the hospitable home of

EASTERN FACE OF TELL HESY.
1:600




Dr. Elliott. On Saturday, the 10th, we pitched our camp at Bureir, six miles from the Tell. Our old workpeople flocked about us, showing their welcome in active assistance in setting up the tents. We had heard so much of the malaria arising from the Wâdy el Hesy that it was necessary to choose a camping place with great wariness. Monday, however, found us established in a spot where we hoped the prevailing winds would bring us no harm from the odious green slime in the river bed. That very afternoon squares were measured off for the men in the former place of excavation, and early the next morning each square contained a man with pick uplifted and two girls with baskets ready, and at the sound of the whistle all fell cheerfully to work. It will be remembered that our last month of work was devoid of interest, so it was a pleasure that the first hour revealed plenty of walls in every direction, showing that we had reached the base of a third town, the town formed by "Manasseh's Wall." In our work here we have found that in some cases one generation builds

directly on the ruined walls of a former, while in others, the fallen and decayed brick of a lower town intervenes as one consolidated mass between the clear walls of a lower town and the clear walls of an upper town. The process would be thus: first we have a lower town, with walls originally, say, 10 or 12 feet high, these are ruined down to 3 feet, and are covered inside and out with the fallen brick to a height of from 3 to 4 feet. Now a new generation comes in which either clears away the fallen rubbish, building on the old 3 feet of walling, or else leaves the consolidated rubbish, building on it. It is the clearing away of this rubbish, which is sometimes found between town and town, that is so tedious to the excavator, although he must keep a sharp look out in hope that perchance something may have fallen in the rubbish. If we continue to dig down in this section, which is 100 feet square, until we reach the original soil, we shall successfully uncover three or four more Jewish towns, and three or four Amorite.

Alas! the warnings of the people in regard to the malaria proved too well founded. Our camp consists nominally of nine: the Effendi, his servant, my foreman, my cook, four guards, and myself. Of this original nine I alone have escaped the fever, and the sick list must also include substitutes who came in as later victims. One tent has had to serve as hospital. Epsom salts and quinine here have numbered among our chief imports. And as to the workmen, their results have been continually broken by fever. We have had several taken ill while at work; they beg for "shulphata" (their title for quinine), having faith in it as a cure-all. Those who may remember the people I mentioned by name in my last paper will regret to hear that Sheikh Mohammed, the embryo theological student, has died of the fever. Munsoor's nuptials with the bold Henda have been postponed on account of an illness, which has reduced the nice lad to a shocking shadow. Rahuma, his father, has been a victim. In fact, it has been a very sober sort of season. Nor has the fever been confined to this region. All over Syria it has prevailed. They say here that a season of excessive rain like last winter is always followed by an unhealthy autumn. Now that the winter rains have begun we hope for better things. Sober also is the landscape about us. Last spring we had a cheerful contrast between the rich greenness of the crops and the reddish soil, but now both green and red have faded into a pale monotonous monochrome of brown. Until quite recently we have been alone in the dreary desert, for the Arabs have kept away from the poisonous river bed. Only at noon large herds of melancholy cows are driven to the wells in the stream-bed for their daily drink, to be driven away again on a hopeless search after nourishment from the barren fields. In revenge they refuse to yield us a drop of milk. Our own drinking water is brought six miles from Bureir, as we dare not drink the local water until after heavy rains. The Arabs keep civil, and we are constantly asked to give them rough foundation stones for building. Some mischievous boys finding a truck standing on the rails one Sunday could not resist the temptation of rolling it down the hundred feet of earth

which forms a slide to the river below, fortunately without damage to the truck.

We have at last found something that looks like a public structure. I can hardly call it a building, for only the very curious foundations remain. I reserve a careful description and plan for my report, but I will here give a general idea of it. The structure, or series of structures, consists of parallel lines of brick-wallings and isolated stones. Beginning at the east we have first a wall, then two lines of stones, then another wall, then two lines of stones, then two walls, then two lines of stones. Exact measurements were not made by the planners of this structure, but they are in general these :—Between two lines of stones, or two lines of walling, or between a line of stones and a wall, the distance is about 8 feet from east to west, between stone and stone from north to south the distance is on an average 3½ feet. Roughly speaking, the length of the structure from east to west was 100 feet, and from north to south about 40 feet. The isolated stones (which are sandstone), are roughly squared, and of irregular sizes. That they are in place is shown by the rough order and by the fine white sand that occurs under each one and nowhere else. They were originally, probably, below the floor of the place, as rough river pebbles, as if a pavement were formed either at a level with their top or a little higher. Hence they may have been the foundations of small columns of mud-brick work, now decayed. I know it is the archæologist's temptation to call every new thing a temple, but it seems more probable that we have here a series of chambers, like a modern bazaar. This, however, is not my last word on the subject. This curious structure was found at a level of about 306 feet, a few feet under "Manasseh's Wall" in the north-east part of the Tell. As in our large section of work we could not hope to reach the Amorite level this season, I selected a platform about 50 feet by 20 in front of the pilaster building at the south-east of the Tell, with the idea of digging down to the Amorite levels more rapidly in this smaller section, which might furnish us with samples of what we might hope for in the larger excavation. We have now reached the Amorite level, indeed we are within a few feet of the natural hill, and have been rewarded by finding an interesting collection of iron objects, large spear heads, and axes or hatchets, as well as a cylindrical seal, and another seal. The iron work is better than what we have found in higher levels, and we may hope to find still other evidences of civilisation when we reach the Amorite level in the large excavation. These objects were found in a large room, with walls of excellent brick, which had been fiercely burnt. All the varieties of Amorite pottery with nothing more modern were found in connection. As Mr. Petrie has shown in his plan of the east face, the Amorite levels are higher in this part of the mound than in the north-east part. I am constantly astonished at the accuracy of his observation during the short time at his disposal here. Thus far we have lost only one whole day and two half days on account of rain, but the real winter storms have not yet begun. I expect to extend the season of work, of course as long as it is prudent.

# NOTES ON POTTERS' MARKS, LAMPS, AND INSCRIPTIONS.

By G. Robinson Lees, F.R.G.S.

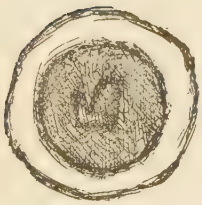
## Potters' Marks on Christian Lamps.

On page 487 of "The Recovery of Jerusalem," I find the following:—"The Christian lamps have been found, &c. It is remarkable that none of them bear potters' marks on the under side."

Enclosed are squeezes of the under side of four Christian lamps in my collection, numbered 1, 2, 3, and 4, each bearing a potter's mark. All

1.

2.



3.

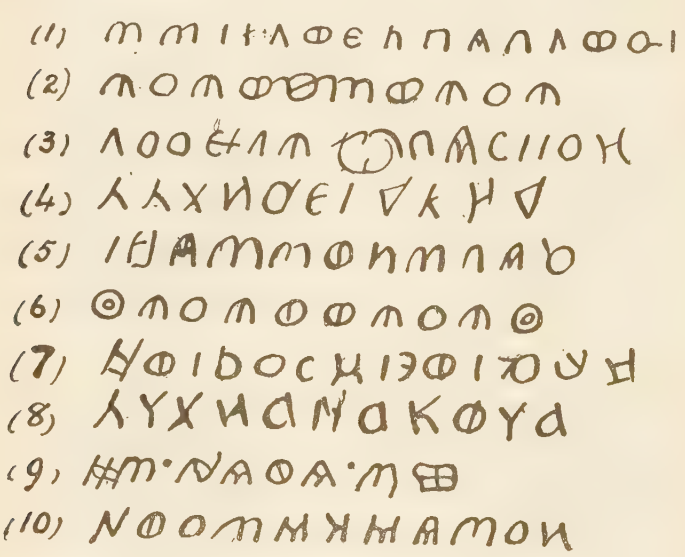
4.

these lamps are of the same shape, but only three are alike in design, although every one has the palm branch on the tongue, near the wick hole. Nos. 1, 2, and 3 are made of dark-red pottery, and the fourth of burnt black. I have eleven others, similar in shape but without potters' marks. They were all found near Jerusalem. Are they the first that have been found on which are potters' marks?

## Lamps with Greek Inscriptions.

A tomb has been recently opened at Isawyeh, on the north-eastern slope of Scopus, containing about 100 lamps, all unmistakably Christian. Fifty-one of them are like the pear-shaped lamp on p. 484 of "The

Recovery of Jerusalem," and 17 are similar to the engraving on the opposite page of the same work, but the inscriptions are different. Below are copies of all the inscriptions. The remainder of the lamps vary, both in shape and design, but have the sign of the cross. Not having time to visit the tomb I asked Mr. Charles A. Hornstein to go. He says the tomb consists of one chamber, which is reached by a small flight of steps. The entrance is very small, only 30 inches wide. On the right hand are two sunk loculi, similar to the one in the tomb supposed by the late General Gordon to be that of our Saviour, three in front, and two on the left-hand side. All are filled with bones. The lamps were all found on the partitions dividing the loculi. On the walls of the tomb are three crosses.



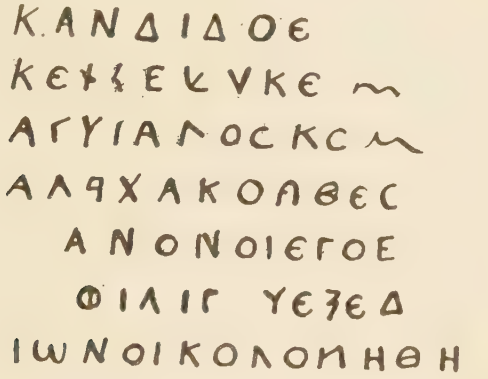

The letters in No. 5 are raised very high.
The above are copied as near as possible to the original.

## Heraldic Device or Token.

I have just received from Kefr Melek a token or heraldic device, made of lead mixed with some harder metal. It is $3\frac{7}{8}$ inches long and $3\frac{1}{2}$ inches across, elliptical in form, with a hole at the top, and on it is engraved an eagle between two branches. It is certainly old, but I cannot give it any approximate date. It must either have been worn, or nailed to something; if the former, surely by a horse, as it weighs $1\frac{1}{2}$ okies, or about 10 ounces, and if the latter, to what—a coffin? or door? I enclose a squeeze.

### Inscription at Busr el Hareer.

On my last journey across the Jordan I was detained by the Government at Busr el Hareer, a border town of the Lejjah. Although my horses and baggage were under guard, I was allowed to wander about, and came across the following inscription, which is not in M. Waddington's book.



It was on a stone, built into a wall near the Seraglio. I may mention that the stone with the long inscription mentioned by Herr Schumacher in his "Across the Jordan," at Ed Dera'ah, as being about to be built into the new Government building, is now at the top of a doorway of an unfinished building, and upside down. I found another stone with an inscription, moved from the place where it was originally discovered, and used as a lintel stone; No. 2480 in M. Waddington's book is an inscription said to be, according to p. 567, "at the mosque near the minaret." It is now over the shop-door of a Christian merchant at Ezra'ah. Alongside of it are two other stones on which are Arabic inscriptions.

Jerusalem, *November 5th*, 1891.

## POTSHERDS.

The durable character of potsherds when placed underground seems to have been recognised in the East from a very early period. Archæologists of the present day have discovered this character of permanency which fragments of broken pottery possess; but this knowledge is as old in India as the days of Manu, and had been applied to a practical use before his time. In Manu's great law book the rules regarding boundary

marks are given ; external objects are mentioned, but in addition to these, there were to be "other hidden marks for boundaries." There were to be,—"stones, bones, cow's hair, chaff, ashes, *potsherds*, dry cowdung, bricks, cinders, pebbles, and sand. And whatever other things of a similar kind the earth does not corrode even after a long time, these he should cause to be buried where one boundary joins [the other]." "Laws of Manu," viii, 250–1. I have made the word potsherds noticeable by putting it in *italics*. "Narada," the name by which another old Hindu law book is known, xix, 5, 6, gives almost the same list of objects, including potsherds, but adds that they were to be placed in vessels when deposited underground as boundary marks. The value of potsherds in relation to archæological explorations has now become so important that it will justify the bringing of this old custom into notice ; and primitive customs, as we know in other things, were often practised over the greater part of the East, it is just within the limits of possibility that deposits of this kind may be found in other localities besides India, and might be supposed to be nothing else than refuse which had been thrown away. In this light, such a scrap of knowledge may turn out to be useful to those who are engaged in the practical work of exploration.

WILLIAM SIMPSON

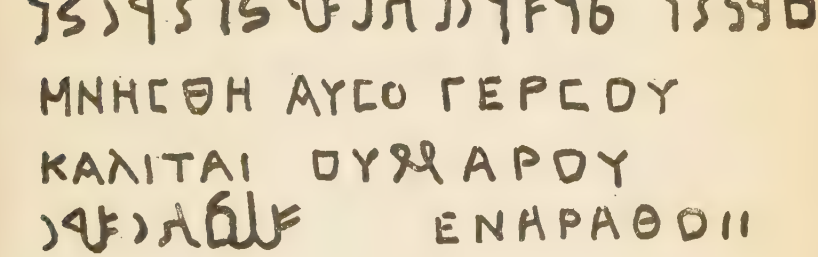
## NOTES BY MAJOR CONDER, R.E.

### I.

### THE SINAITIC INSCRIPTIONS.

IT would seem from a paragraph in Mr. Harper's volume ("The Bible and Modern Discoveries," p. 129) that the date and meaning of the Sinaitic inscriptions are regarded by some as still a matter of dispute. It would seem, therefore, not unnecessary to call attention to the fact that the question has long been decisively settled by scholars, and that it is certain that they are Nabathean pilgrim texts of the 3rd and 4th century A.D., written by travellers who were then visiting the Sinai convent, and the hermitage of Wâdy Feirân, and the traders who passed from Petra on the way to Egypt. They were first read by Beer in 1840, and the authoritative work on the subject is that of Levy in 1860 (Z.D.M.G., vol. xiv, pp. 363 to 480). The alphabet is the same which was used at Petra in the same age, and the texts, when translated, are found to contain pious sentiments, and invocations of peace, blessing, and health on the writer and to record the names of those who died in the desert. There are no dates on any of them, but the crosses which accompany the texts show them to be Christian. Those who still believe in the Rev. C. Foster's

wild lucubrations on the subject are perhaps not aware of the existence of a bilingual, in Greek and Sinaitic, of which Sir C. W. Wilson brought home an excellent cast and squeeze, which I have been enabled through his kindness to study. Mr. Harper says that "Various are the ideas about them," and I have been often asked whether they may not be writings of the Israelites. The peculiarities of the Greek letters, in the bilingual in question, show, however, that the Greek cannot have been penned before the 4th century A.D., and no one is likely to contend that the Israelites wrote Greek. On the other hand it is certain, from the arrangement of the Sinaitic version, that it was written after and not before the Greek. The monument has the figure of a man (with phallic detail) on the top, and of a horse below. The text is as follows :—




I have not got Levy's work in my possession, and do not know whether he has translated this bilingual, but it presents no great difficulty, since the Greek, and the Nabathean or Sinaitic, appear to mean exactly the same.

The Greek, which appears to be rather rude, runs, as I suppose thus :—

Μνησθη Αυσο Γερσου
Καλιται ουμαρου εναραθοι.

"Remember it is asked Ausus, the son of Gersus, Let your pilgrimage be prayed for.' In this case Ουμαρου is from Ὅμ, and ἄϊρειν "to march together," or go in company. Equally imperfect Greek is found in the 4th century texts of the Hauran.

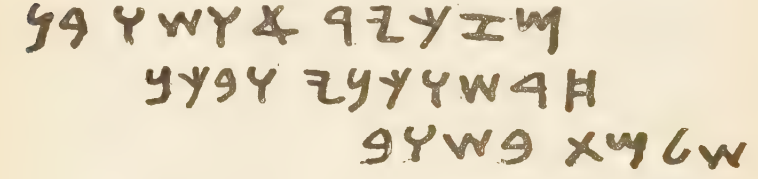
The Nabathean transcribed in modern Arabic letters reads—

مزكير اوسو بن خرسو كني و بكن
سلمة بسوب

"Let Ausu, the son of Khersu, be remembered, and to you be safety on the journey" (or pilgrimage).

This single instance is sufficient to explain the character of all the Sinaitic texts, since they are all in the same alphabet and dialect. The object of writing in both Greek and Nabathean, in this instance, was apparently that Greek pilgrims might pray for Ausus as well as native Nabatheans. Greek texts of the early Christian period are found in other cases on the Sinaitic rocks.

We have at present no evidence of the use of any Semitic alphabet in the time of Moses, and we know that as late as 1430 B.C. the inhabitants of Syria were using cuneiform characters. But if the Hebrews in Sinai used an alphabet, the forms of the letters would not be less archaic than those of the Moabite stone ; and it may, therefore, be of interest to show what this text would look like if written in that character :—



The degradation of the Sinaitic forms robs them of all similarity to their prototypes, and the connection has only been traced by much labour through the later Aramean. It will also be observed that the writing has become cursive, and that the letters are joined together, as in the Cufic of the 6th and 7th centuries in Palestine and Bashan. This use of ligatures is one of the surest distinctions between the Nabathean and the older Hebrew, Phœnician, Moabite, and Aramean texts.

Southampton, *July 11th*, 1891.

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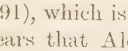
## II.

### Alosha Elishah.

In the collection from Tell Amarna there are no less than ten letters to the King of Egypt from the Prince of Alosha, or Alasiya, written in the same Semitic language then used (1500 B.C.) all along the Phœnician coasts. The name is spelt  *A-la-sī-ya*, but the Egyptians called this region Alosha. From one of these recently translated ("Proc. Bib. Arch. Soc.," June, 1891), which is No. 12 of the collection as arranged by Dr. Winckler, it appears that Alosha was a maritime region. The Prince says, "My merchant men and my ship (*ilappu-ia*) let not thy guardians treat them ill." Since the collection includes letters from as far south as Ascalon and Lachish, it is possible that Alosha was not far

distant on the Phœnician coast. It was a country where bronze was manufactured (No. 37, British Museum Collection). It occurred to me that possibly the name is a weaker form of the name Aloth (עלות), mentioned in the Bible as that of a region, or a town, in or adjoining the land of Asher, which was one of the provinces of Solomon's dominion (1 King, iv, 16). The Hebrew name would mean the "higher places," and may refer to the low hills east of the south Phœnician coast, above the narrow plain of Asher, which hills also belonged to the same tribe. But perhaps a better explanation is to connect it with the Hebrew Elishah (אלישה) (Gen. x, 4; Ezek. xxvii, 7) a suggestion which, as far as I know, has not yet been made. The Sons of Javan (Ionia) are said to have included Elishah, Tarshish, Kittim, and Dodanim (or Rodanim), and in Ezekiel's time Elishah traded in purple with Tyre. In this passage, the "isles" (איי) of Elishah are mentioned, but the word is well known to mean rather "shores" than isles; so that Elishah was clearly a maritime region. The places with which it is mentioned are all probably near Asia Minor, including Kittim or Cyprus. For Tarshish is most probably *Tarsûs*, on the south-east coast of Asia Minor. The Dodanim are supposed by Gesenius to be really the Rodanim, or Rhodians, on account of 1 Chr. i, 7, and the Samaritan and LXX of Gen. x, 4. According to the Samaritan version Elishah seems to be understood to be Elis (אליש); others read Hellos, the Talmudic writers Elis or Æolis. The purple of Laconia is mentioned by Horace (Od. ii, 18, 7, as quoted by Gesenius).

The result seems to me to be that Alosha was a region on the south coast of Asia Minor. The Aramean influence in Cilicia was very strong at an early period, and the Phœnician coast adjoined. I am tempted to suppose that this was the old form of the name of Lycia, as pronounced by the Greeks, which region lay on the shores of Asia Minor between Rhodes and Tarsus. On the Lycian monuments the name of the country appears to me to be written *Lacha*, with a soft *ch*, which is a nearer approach to Elishah. The Phœnician coast was not rich in minerals, as far as we know; their copper was brought from Cyprus and their tin from Tarshish, which it seems to me impossible to place at Tartessus in Spain, where there was little if any tin, since the name occurs with those of other Asia Minor places. Tin was well known in Western Asia long before Spain can have been reached, and was probably brought from the Caucasus. Asia Minor appears to be richer in the metals than Phœnicia, and this would agree with the proposed identification of Alosha with Elishah, as on the south coast of Asia Minor.

Southampton, 29*th October*, 1891.

## III.

### Notes on Herr Schick's Report, Tell el Hesy Inscriptions, and Dinhabah.

*Queries.*—The suggestion of Mr. Guy le Strange is no doubt excellent. I would suggest he should state what are the unanswered questions to which he refers. If I am able to answer any of them I should be happy to do so.

*Herr Schick's Report.*—The discovery of a rock-cut way, north-west of the Church of the Holy Sepulchre, seems to me of great interest. It is close to an ancient road-crossing, and just where I have always supposed the "Old Gate" of Nehemiah's wall should be placed. It may, perhaps, mark the entrance to that gate. The aqueduct, on the west side of the city, also seems to follow the line of the 3rd Wall, and may have had some connection with it. The levels agree in showing the existence of an original knoll (*Akra*) near the Holy Sepulchre.

*Tell el Hesy Inscription.*—If the letters are, as I suppose, given in *fac-simile*, they belong to the Greek alphabet, as in use in Palestine about the Christian era. (See, for instance, the "Warning Stone," of Herod's Temple.) They are not the forms of the earlier Greek letters, which were more like the Phœnician. These letters appear to have been found near the base of the town. The bricks which Mr. Bliss dug into may, I would suggest, have formed part of an artificial mound, on which the town stood (as in Assyria, and in other instances in the Palestine plains). Perhaps Mr. Bliss can inform us whether such a conclusion would agree with his observations.

I may be excused for expressing my interest in his picturesque account of his work, which shows that he thoroughly understands the natives; and how to deal with them.

*Dinhabah.*—We owe to the Rev. H. G. Tomkins many valuable identifications of ancient towns, including, I think, Tunep of Syria; but I feel some doubt as to the present proposal. One would more naturally look for Dinhabah in Edom than in Moab (Gen. xxxvi, 32). The name *Hodbat et Toneib* would seem to mean "hummock of the tent rope." I have not actually been at the site, but I have been very near it, and as far as I have heard or seen it does not appear to be the site of a town. Perhaps Mr. Selah Merrill can throw light on the subject. If, as I suppose, the *t* is ט, this is rather a difficulty in connecting the site with Dinhabah, which, it may be observed, was the royal city of Bela when reigning in Edom, and therefore perhaps rather to be sought near Petra.

Southampton, 26*th October*, 1891.

## DINHABAH.

Referring to the communication from the Rev. H. G. Tomkins in the last *Quarterly Statement*, I may mention that my wife and I visited Toneib near to Kûstûl in April, 1891, in the course of a visit to the Beni Sakhr tribe, in whose territory both places lie. On the map of the Palestine Exploration Fund it is called Hodbat et Toneib, but the Beni Sakhr men who accompanied us said they knew nothing of "Hodbat" and that the proper name was Toneib. It appears from "Eastern Palestine," published by the Fund, that this place was not included in the survey, and indeed the country in the neighbourhood of Kûstûl, which lies to the west of the Haj road, is not fully laid down in the map, which must have been compiled from rough surveys by travellers. And the Fund's map stops short altogether at that road.

The ruins visible at Toneib are but small in extent, but the caves and old cisterns are numerous. There is nothing there, however, at any rate above ground, comparable in importance to the remains at Kûstûl, and nothing more than is found on the top of almost every hill in the neighbourhood.

Gray Hill.

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## NOTE ON THE PALMYRENE INSCRIPTIONS.

By the Rev. Prof. H. Porter.

In the *Quarterly Statement* for October last there is an error in my "Notes on the Palmyrene Inscriptions" (pp. 312–314).

The Palmyrene text of No. 2, marked (D), has been exchanged for that of No. 4, marked (B). The two should change places, as will readily be seen by comparing with the Hebrew text.

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## CORRECTION.

The following correction should be made in the paper on Horeb in April, 1891, number of Palestine *Quarterly Statement*, page 180.

The note at foot of the rough sketch should read as follows :—

"N.B.—The distance between Temple and southern boundary is 20,000 reeds, which equals 39 miles 1,365 yards, or 39′ 42″ of latitude, and 31° 47′ − 39′ 42″ = 31° 7′ 18″.

In last line but one, page 182, 5,000 should read 50,000.

J. Stow.

Rhenoster Downs, Transvaal,
*20th August*, 1891.

# RESEARCHES ON THE PATHOGENIC MICROBES OF THE MUD OF THE DEAD SEA.

By M. L. Lortet.

(*Translation.*)

"In a former communication I have shown that the deposits of the filtering galleries, as well as the deep mud, of the Lake of Geneva, may preserve alive the adult forms or the spores of a certain number of pathogenic microbes. It is interesting to know whether the same results can be established in sheets of water subject to entirely different conditions of temperature, light, and, above all, of chemical composition, and it is with a view to the solution of this problem that I have analysed the mud which has been sent to me from the Dead Sea by M. Barrois, Professor of the Faculty of Medicine at Lille.

"The Dead Sea, placed at the southern end of the Valley of the Jordan, presents about the same extent as the Lake of Geneva. It occupies a vast basin, which is certainly the deepest depression on the face of the earth, for its surface is 400 metres below that of the Mediterranean. Rocky walls, rising to 800 metres, surround it on every side. This sea is nourished by the Jordan, a rapid river, whose waters are, during a part of the year, charged with mud and organic matters proceeding from its source amid the snows of Mount Hermon. The saline, thermal, and bituminous springs contribute around its margin a considerable mass of water, which may double that brought by the Jordan.

"The density of the water of the Dead Sea is 1,162, whilst that of the ocean is only 1,027; so that the human body, as has been frequently said, and as I have myself been able to ascertain in two successive visits, floats easily, and without the help of any movement, on the surface of this heavy liquid.

"The waters of the Dead Sea cannot escape by any known issue, and as it is very evident that its level has subsided considerably, the evaporation must raise every day at least 6,500,000 tons of water, an enormous mass, which is, however, easily drawn up by the rays of a fiery sun, the Valley of the Dead Sea being one of the hottest points on the globe. During a long series of centuries the waters must have been concentrating more and more, and the inferior beds of this liquid mass are formed only of mud enclosing an enormous quantity of crystalline needles of different salts forming a semi-fluid pap.

"It is this strange medium, so strongly charged with saline substances injurious to the higher organisms, that I have been studying from a bacteriological point of view. The water drawn at 200 metres and brought home, in 1866, by M. Lartet, the geologist attached to the expedition of the Duke de Luynes, has been analysed by M. Terreil, who found:—

| | | | | |
|---|---|---|---|---|
| Chloride of | Sodium | .... | .... | 60·125 gr. |
| „ | Magnesium | .... | .... | 160·349 „ |
| „ | Potassium | .... | .... | 9·63 „ |
| „ | Calcium | .... | .... | 10·153 „ |
| Bromide of | Magnesium | .... | .... | 5·04 „ |
| | Lime | .... | .... | 0·78 „ |

"A total of 246·077 gr. of saline matter per litre. In certain parts the bromine, which the experiments of Paul Bert have shown to have a very energetic action upon the vitality of the tissues, may reach even to 7 gr. per litre. The microscopist Ehrenberg, the naturalists of the expedition of Captain Lynch, those who accompanied the Duke de Luynes, myself in 1875 and in 1880, have verified that the waters of the Dead Sea do not contain any living vegetable or animal organism. Recently, M. Barrois, the able zoologist of the Faculty of Lille, has traversed in a boat a great part of the Dead Sea, hoping to find there the inferior animalculæ. But, like his predecessors, he has been able to ascertain that these waters are entirely sterile.

"In consequence of the statements made by such competent men, I thought that the waters of the Dead Sea might well, in consequence of their concentration and their special chemical composition, constitute an aseptic liquid capable, perhaps, of some useful application.

"The semi-liquid mud, collected with care by M. Barrois, was then diluted suitably, and distributed in many hundreds of tubes and flasks. What was not my profound astonishment to observe, after forty-eight hours, that all the nutritive media contained, especially in their deep parts, two micro-organisms perfectly recognisable by their altogether special form: those of *gangrène gazeuse*, characterised by large bacilli accompanied by corpuscles like the clapper of a bell, and those of tetanus, so easily recognisable by their form resembling a pointed nail with a spherical head.

"Guinea-pigs inoculated with sterilised water mixed with a little of the mud were all dead in less than three days of gangrenous septicæmia, with all the train of symptoms, in some degree intensified, characteristic of this formidable affection. Guinea-pigs and donkeys have also all perished from the same affection after inoculation with the product of our culture in media deprived of contact with oxygen. In the one case and in the other, numerous bacilli have always shown themselves in the peritoneum, in the muscles, and in the blood, which have transmitted the malady to other subjects, and which, cultivated afresh, have reproduced the bodies like the clapper of a bell, which are so characteristic. The affection engendered by these organisms is the *gangrène gazeuse* and not the *charbon symptomatique*, with which one might confound it, for young oxen experimented upon have not been affected by our inoculations. Most of the guinea-pigs inoculated directly with the mud presented tetanic symptoms, corresponding to the frequency of the organisms described above.

"The experiments here described prove, then, once for all, that certain pathogenic microbes may resist for a long period, whether in the adult state or in the form of spores, prolonged contact with large masses of water, even whilst they contain, in considerable quantities, salts injurious to every other organism, animal or vegetable. From a practical point of view, the above researches demonstrate, as far as the evidence goes, that it will be imprudent to regard water strongly charged with salt as an antiseptic liquid capable of protecting against attacks of tetanus and *gangrène gazeuse*."

## ON THE FALL OF RAIN, THE AMOUNT OF CLOUD, THE FREQUENCY OF CLOUDLESS SKIES, AS RECORDED DAILY, AT 9 A.M. LOCAL TIME, BY HERR DREHER AT SARONA IN THE TEN YEARS ENDING 1889.

By James Glaisher, F.R.S.

The receiving area of the Rain Gauge was placed near the surface of the ground, the amount of cloud was estimated by considering a cloudless sky as 0, and an overcast sky as 10.

TABLE I.—Rainfall in each Month at *Sarona*.

| Month. | Years. | | | | | | | | | | Sums of 10 years. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1880. | 1881. | 1882. | 1883. | 1884. | 1885. | 1886. | 1887. | 1888. | 1889. | |
| | in. | in. | in. | in. | in. | in. | in. | in. | in. | in. | in. |
| January .. | 5·32 | 0·47 | 4·37 | 11·32 | 6·60 | 7·89 | 4·47 | 5·74 | 4·94 | 5·85 | 57·06 |
| February.. | 4·29 | 4·12 | 7·22 | 3·71 | 6·09 | 1·46 | 3·80 | 2·27 | 2·74 | 0·66 | 36·36 |
| March .. | 2·28 | 2·55 | 1·04 | 2·52 | 1·49 | 1·19 | 1·59 | 0·89 | 0·28 | 0·89 | 14·63 |
| April .. | 1·22 | 0·23 | 4·17 | 0·52 | 1·02 | 0·61 | 1·21 | 0·07 | 1·12 | 0·57 | 10·74 |
| May .. | 0·12 | 0 00 | 0·63 | 0·09 | 0·49 | 0·12 | 0·15 | 0·95 | 0·28 | 0·02 | 2·76 |
| June .. | 0·00 | 0·00 | 0. 00 | 0·00 | 0·02 | 0·56 | 0·00 | 0·00 | 0·01 | 0·00 | 0·59 |
| July .. | 0·00 | 0·00 | 0·00 | 0·00 | 0·00 | 0·00 | 0·00 | 0·00 | 0·00 | 0·00 | 0·00 |
| August .. | 0·00 | 0·00 | 0·35 | 0·00 | 0·00 | 0·00 | 0·00 | 0·00 | 0·00 | 0·00 | 0·35 |
| September | 0·00 | 0·00 | 0·00 | 0·00 | 0·00 | 0·00 | 0·00 | 0·08 | 0·00 | 0·33 | 0·41 |
| October .. | 0·45 | 0·00 | 0·44 | 1·36 | 1 16 | 0·79 | 0·75 | 0·00 | 1·67 | 0·00 | 6·62 |
| November | 4·95 | 5·09 | 0·29 | 8·14 | 1·32 | 0·15 | 3·12 | 1·84 | 6·27 | 1·81 | 32·98 |
| December | 10 05 | 5·03 | 3·58 | 2·49 | 0·45 | 7·29 | 5·00 | 5·22 | 11·53 | 3·46 | 54·10 |
| Sums .. | 28·68 | 17·49 | 22·09 | 39·06 | 18·73 | 20·06 | 20·09 | 17·06 | 28 84 | 13·50 | 21·66 average. |

BIBLIOTECA

The extreme monthly falls of rain in each month and the mean monthly fall are as follows :—

| | The smallest was | The largest was | The mean was |
|---|---|---|---|
| | inch. | inch. | inch. |
| In November .... | 0·15 in 1885 | 6·27 in 1888 | 3·30 |
| December .... | 0·45 „ 1884 | 11·53 „ 1888 | 5·41 |
| January .... | 0·47 „ 1881 | 11·32 „ 1883 | 5·71 |
| February .... | 0·66 „ 1889 | 7·22 „ 1882 | 3·64 |
| March .... .... | 0·28 „ 1888 | 2·55 „ 1881 | 1·46 |
| April .... .... | 0·07 „ 1887 | 4·17 „ 1882 | 1·07 |

In May, no rain fell in the years 1881 and 1883 ; 0·02 inch fell on one day in 1889 ; and in the other years it varied from 0·12 inch in the years 1880 and 1885 to 0·95 inch in 1887, the mean fall for May being 0·28 inch.

In June, rain fell on four days in the 10 years—in 1884, on one day ; in 1885, on two days ; and in 1888 on one day. The average fall for the 10 years was 0·06 inch.

In July, no rain fell on any day in the 10 years.

In August, rain fell on one day in the 10 years, viz., in 1882, to the depth of 0·35 inch.

In September, rain fell on one day in 1887, and on two days in 1889.

In October, no rain fell in 1881, 1887, and 1889, and the amount varied in the other years from 0·44 inch in 1882 to 1·67 inch in 1888. The mean for 10 years was 0·66 inch.

Thus the rainfall in every month in the rainy season may be small and the difference in the amount in different years is great ; the greatest difference appears in December, and is 11·08 inches ; the next in order is 10·85 inches in January ; 6·56 inches in February ; 6·12 inches in March 4·10 inches in April ; and 2·27 inches in May.

The heaviest monthly fall of rain in each year has been—

| | Inches. |
|---|---|
| In 1880 .... .... .... .... | 10·05 in December. |
| 1881 .... .... .... .... | 5·09 „ November. |
| 1882 .... .... .... .... | 7·22 „ February. |
| 1883 .... .... .... .... | 11·32 „ January. |
| 1884 .... .... .... .... | 6·69 „ January. |
| 1885 .... .... .... .... | 7·89 „ January. |
| 1886 .... .... .... .... | 5·00 „ December. |
| 1887 .... .... .... .... | 5·74 „ January. |
| 1888 .... .... .... .... | 11·53 „ December. |
| 1889 .... .... .... .... | 5·85 „ January. |

So that the heaviest monthly fall of rain has been—

Five times in January.
Three times in December.
Once in November.
Once in February.

The greatest fall of rain in any month was 11·53 in December, 1888; the next in order were 11·32 inches in January, 1883, and 10·05 inches in December, 1880.

At Jerusalem in these months the falls were 16·40 inches, 10·93 inches, and 13·00 inches respectively.

The heaviest average monthly fall is 5·71 inches in January; the next in order is 5·41 inches in December, 3·64 inches in February, and 3·30 inches in November.

The numbers at the foot of the column show the fall of rain in each year. The heaviest fall, 30·06 inches, was in 1883; the next in order were 28·84 inches in 1888, and 28·68 inches in 1880. The smallest fall was 13·50 inches in 1889; the next in order, 17·06 inches in 1887, and 17·49 inches in 1881. The average fall was 21·66.

TABLE II.—Number of days on which Rain fell in each Month at *Sarona*.

| Months. | Years. | | | | | | | | | | Sums of 10 Years. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1880. | 1881. | 1882. | 1883. | 1884. | 1885. | 1886. | 1887. | 1888. | 1889. | |
| January .. | 17 | 4 | 10 | 20 | 14 | 17 | 15 | 12 | 11 | 18 | 138 |
| February.. | 12 | 12 | 15 | 14 | 18 | 9 | 11 | 7 | 9 | 7 | 114 |
| March .. | 7 | 10 | 5 | 7 | 10 | 8 | 9 | 4 | 2 | 3 | 65 |
| April .. | 5 | 4 | 11 | 3 | 4 | 5 | 4 | 2 | 5 | 3 | 46 |
| May .. | 1 | 0 | 3 | 0 | 2 | 1 | 3 | 2 | 4 | 1 | 17 |
| June .. | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 4 |
| July .. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| August .. | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| September | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 3 |
| October .. | 3 | 0 | 5 | 5 | 5 | 1 | 2 | 0 | 2 | 0 | 23 |
| November | 6 | 7 | 2 | 11 | 8 | 4 | 11 | 5 | 13 | 6 | 73 |
| December | 15 | 11 | 10 | 11 | 3 | 16 | 11 | 10 | 14 | 10 | 111 |
| Sums .. | 66 | 48 | 62 | 71 | 65 | 63 | 66 | 43 | 61 | 50 | 595 |

The number of days of rain in each month have varied—

| In— | from— | to— | the average is |
|---|---|---|---|
| November | 2 in 1882 | 13 in 1888 | 7·3 |
| December | 3 „ 1884 | 16 „ 1885 | 11·1 |
| January | 4 „ 1881 | 20 „ 1883 | 13·8 |
| February | 7 „ 1887 and 1889 | 18 in 1884 | 11·4 |
| March | 2 „ 1888 | 10 „ 1881 and 1884 | 6·5 |
| April | 2 „ 1887 | 11 „ 1882 | 4·6 |

In May, no rain fell in the years 1881 and 1883, and the number of days varied in the other years from 1 in 1880, 1885, and 1889, to 4 in 1888 ; the average of the 10 years is 1·7.

In June, rain fell on four days in the 10 years, one in 1884, two in 1885, and one in 1888.

In July, no rain fell in the 10 years.

In August, rain fell on one day, in 1882.

In September, rain fell on three days in the 10 years, one in 1887 and two in 1889.

In October, no rain fell in 1881, 1887 and 1889, and the number of days in the other years varied from one in 1885 to five in each of the years 1882, 1883, and 1884. The average of the 10 years is 2·3.

On three out of the four days in June on which rain fell at Sarona no rain fell at Jerusalem.

In August, 1882, and September, 1887, no rain fell at Jerusalem.

In September, 1889, on the 21st and 22nd days, rain fell at Sarona to the depth of 0·21 inch once and 0·12 inch respectively. The only rain at Jerusalem in this month was on the 22nd to the depth of 0·02 inch only. Therefore we may conclude that during the dry season the falls of rain are local.

The number of days of rain in the months of the rainy season may be small, and differ very much from the number in the same month in other years.

The greatest difference is 16 in January ; the next in order are 13 in December, 11 in February and November, 9 in April, and 8 in March.

The greatest monthly number of days of rain in each year has been—

| | | |
|---|---|---|
| In 1880, in | January | 17 |
| 1881 „ | February | 12 |
| 1882 „ | February | 15 |
| 1883 „ | January | 20 |
| 1884 „ | February | 18 |
| 1885 „ | January | 17 |
| 1886 „ | January | 15 |
| 1887 „ | January | 12 |
| 1888 „ | December | 14 |
| 1889 „ | January | 18 |

So that the greatest number of rainy days have been—

Six times in January.
Three times in February.
Once in December.

The numbers in the last column of the preceding table show the number of days of rain in every month in 10 years.

The largest number is 138 in January ; the next in order are 114 in February, 111 in December, 73 in November, and 65 in March.

The smallest numbers are, none in July, 1 in August, 3 in September, 4 in June, 17 in May, 23 in October, and 46 in April.

The numbers at the foot of Table II show the number of days of rain in each year. The largest number is 71, in 1883 ; the next in order are 66 in 1880 and 1886, and 65 in 1884. The smallest numbers are 43 in 1887, 48 in 1881, and 50 in 1889. The total number of days of rain in the ten years is 595, or 59½ days yearly.

Palestine having long periods of dry weather, followed by long periods of wet weather, the latter beginning in November, when no rain falls in October, and ending in April, when no rain falls in May, it is desirable to discuss the observations of rainfall in relation to the season, as all agricultural operations are dependent upon the rainfall. I experienced some difficulty in deciding both the beginning and ending of the rainy period, and, in consultation with Dr. Chaplin as to what amount of rainfall I should adopt, he said that rain to the amount of 0·1 inch or 0·2 inch or more, either falling on one day or on two or more successive days, he thought he had adopted in his report on the climate of Jerusalem, published in the *Quarterly Report* for January, 1883, and I have adopted this amount :

| | | | | |
|---|---|---|---|---|
| In 1879 | on | October 10th.... .... .... | the fall was | 0·20 inch. |
| 1880 | „ | May 2nd .... .... .... | „ | 0·12 „ |
| „ | „ | October 18th .... .... .... | „ | 0·24 „ |
| 1881 | from | April 16th to April 19th .... | „ | 0·23 „ |
| „ | on | November 6th .... .... | „ | 0·71 „ |
| 1882 | „ | May 23rd to May 25th .... | „ | 0·63 „ |
| „ | „ | October 20th to October 25th | „ | 0·44 „ |
| 1883 | „ | April 24th and 25th ... .... | „ | 0·31 „ |
| „ | „ | October 10th and 11th .... | „ | 0·45 „ |
| 1884 | „ | May 4th and 5th .... .... | „ | 0·49 „ |
| „ | „ | October 20th and 21st .... | „ | 0·15 „ |
| 1885 | „ | May 15th .... .... ... | „ | 0·12 „ |
| „ | „ | October 5th .... .... .... | „ | 0·79 „ |
| 1886 | „ | May 11th ... .... .... | „ | 0·13 „ |
| „ | „ | October 30th .... .... .... | „ | 0·55 „ |
| 1887 | „ | May 2nd .... .... .... | „ | 0.50 „ |
| „ | „ | November 15th .... .... | „ | 0·89 „ |
| 1888 | „ | May 10th and 11th .... .... | „ | 0·17 „ |
| „ | „ | October 31st .... .... .... | „ | 1·65 „ |
| 1889 | „ | April 5th .... .... .... | „ | 0·10 „ |
| „ | „ | November 7th, 8th, and 9th | „ | 0·74 |

TABLE III.—Showing days of commencement, termination, and duration of Rainy and Dry Seasons.

| Seasons. | Days of | | Duration of | | Fall of Rain during | |
|---|---|---|---|---|---|---|
| | Commencement. | Termination. | Rainy Season. | Following Dry Season. | Rainy Season. | Following Dry Season. |
| | | | | | inches. | inch. |
| 1879-80 .. .. | October 10 .. .. | May 2 .. .. .. | 206 | 168 | 20·81 | 0·00 |
| 1880-81 .. .. | October 18 .. .. | April 19 .. .. | 184 | 200 | 22·82 | 0·00 |
| 1881-82 .. .. | November 6 .. .. | May 25 .. .. .. | 201 | 147 | 27·55 | 0·35 |
| 1882-83 .. .. | October 20 .. .. | April 25 .. .. | 188 | 167 | 22·38 | 0·00 |
| 1883-84 .. .. | October 10 .. .. | May 3 .. .. .. | 209 | 167 | 27·77 | 0·02 |
| 1884-85 .. .. | October 20 .. .. | May 15 .. .. .. | 208 | 142 | 14·20 | 0·56 |
| 1885-86 .. .. | October 5 .. .. | May 11 .. .. .. | 218 | 171 | 19·45 | 0·00 |
| 1886-87 .. .. | October 30 .. .. | May 2 .. .. .. | 185 | 196 | 18·79 | 0·08 |
| 1887-88 .. .. | November 15 .. .. | May 11 .. .. .. | 179 | 172 | 16·42 | 0·03 |
| 1888-89 .. .. | October 31 .. .. | April 5 .. .. .. | 157 | 215 | 27·33 | 0·35 |
| 1889-90 .. .. | November 7 | | | | | |

The rainy season began :—

| | | | | | | |
|---|---|---|---|---|---|---|
| In | 1885 | .... | .... | .... | .... | on October 5th. |
| | 1879 and | 1883 | .... | .... | „ | „ 10th. |
| | 1880 | .... | .... | .... | .... | „ „ 18th. |
| | 1882 and | 1884 | .... | .... | „ | „ 20th. |
| | 1886 | .... | .... | .... | .... | „ „ 30th. |
| | 1888 | .... | .... | .... | .... | „ „ 31st. |
| | 1881 | .... | .... | .... | .... | „ November 6th. |
| | 1889 | .... | .... | .... | .... | „ „ 7th. |
| | 1887 | .... | .... | .... | .... | „ „ 15th. |

Thus the rainy season has begun eight times in October and three times in November ; the earliest was October 5th and the latest November 15th.

The rainy season ended :—

| | | | | | | |
|---|---|---|---|---|---|---|
| In | 1889 | .... | .... | .... | .... | on April 5th. |
| | 1881 | .... | .... | .... | .... | „ „ 19th. |
| | 1883 | .... | .... | .... | .... | „ „ 25th. |
| | 1880 and | 1887 | .... | .... | „ | May 2nd. |
| | 1884 | .... | .... | .... | .... | „ „ 5th. |
| | 1886 and | 1888 | .... | .... | „ | „ 11th. |
| | 1885 | .... | .... | .... | .... | „ „ 15th. |
| | 1882 | .... | .... | .... | .... | „ „ 25th. |

Thus the rainy season has ended three times in April and seven times in May.

The earliest ending was April 5th, and the latest May 25th.

The mean duration of the ten rainy seasons is 193½ days. The longest was 218 and the shortest 157 days.

The mean duration of the ten dry seasons is 174½ days. The longest was 215 and the shortest 142 days.

In the rainy season the largest fall was 27·77 inches in the season 1883-1884 ; the next in order were 27·55 inches in 1881-1882, and 27·33 inches in 1888-1889 ; and the smallest fall for the rainy season was 14·20 inches in 1884-1885 ; the next in order were 16·42 inches in 1887-1888, and 18·79 in 1886-1887. The mean of the ten rainy seasons was 21·75 inches.

In the dry season no rain fell in the years 1880, 1881, 1883, and 1886 ; a little rain fell in 1882, 1884, 1885, 1887, 1888, and 1889 : the total fall in these six dry seasons was 1·39 inch. The average fall for the 10 years was 0·14 inch.

During the rainy season the rainfall in one day at times exceeded 2 inches, viz. :—

| | | | | |
|---|---|---|---|---|
| In 1880, on | November 28th, | the fall was | 2·15 | inches. |
| 1881 „ | November 7th | „ | 2·65 | „ |
| 1883 „ | November 3rd | „ | 3·13 | „ |
| 1884 „ | January 22nd | „ | 2·02 | „ |
| 1885 „ | December 24th | „ | 2·14 | „ |
| 1887 „ | December 15th | „ | 2·12 | „ |
| 1888 „ | January 16th | „ | 2·17 | „ |
| 1888 „ | November 13th | „ | 2·10 | „ |
| 1888 „ | December 18th | „ | 2·95 | „ |

Thus, in 10 years, the heaviest fall of rain in one day was 3·13 inches on November 3rd, 1883, and the next in order was 2·95 inches on December 28th, 1888.

Of these heavy falls—

| | | |
|---|---|---|
| Four | took place | in November. |
| Three | „ | „ December. |
| Two | „ | „ January. |

During the winter months rain fell frequently for six, seven, or eight days together.

| | | | | | |
|---|---|---|---|---|---|
| In 1880 | rain fell | on 8 | consecutive | days | from Jan. 3 to Jan. 10. |
| „ | „ | 7 | „ | „ | Feb. 17 to Feb. 23. |
| „ | „ | 7 | „ | „ | March 10 to March 16. |
| „ | „ | 8 | „ | „ | Dec. 6 to Dec. 13. |
| 1881 | rain did not fall | on more than four | consecutive | days. | |
| 1882 | rain fell | on 6 | consecutive | days | from Jan. 18 to Jan. 23. |
| „ | „ | 13 | „ | „ | Feb. 1 to Feb. 13. |
| 1883 | „ | 7 | „ | „ | Jan. 6 to Jan 12. |
| „ | „ | 6 | „ | „ | Jan. 28 to Feb. 2. |
| „ | „ | 7 | „ | „ | Feb. 24 to March 2. |
| 1884 | „ | 8 | „ | „ | Feb. 13 to Feb. 20. |
| 1885 | „ | 6 | „ | „ | Jan. 28 to Feb. 2. |
| „ | „ | 10 | „ | „ | Dec. 21 to Dec. 30. |
| 1886 | „ | 8 | „ | „ | Feb. 21 to Feb. 28. |
| „ | „ | 6 | „ | „ | March 26 to March 31. |
| „ | „ | 6 | „ | „ | Nov. 26 to Dec. 1. |
| „ | „ | 7 | „ | „ | Dec. 10 to Dec. 16. |
| 1887 | „ | 7 | „ | „ | Jan. 21 to Jan. 27. |
| 1888 | „ | 6 | „ | „ | Dec. 14 to Dec. 19. |
| 1889 | „ | 7 | „ | „ | Jan. 5 to Jan. 11. |
| „ | „ | 7 | „ | „ | Jan. 29 to Feb. 4. |

Of these long periods of rain—

| | | |
|---|---|---|
| Eight | began in | January. |
| Five | „ | February. |
| Two | „ | March. |
| One | „ | November. |
| Four | „ | December. |

Rainy periods of seven or eight days are frequent in the months of January, February, and December, and occasionally in March and November. In the year 1881 rain did not fall throughout the year on more than four consecutive days. In 1882 rain fell on 13 consecutive days, being the longest period of consecutive rain in the 10 years, the next in order of length is one of 10 days in 1885.

Following these rainy periods fine weather follows, and at times of considerable length, for instance :—

| In— | | | | |
|---|---|---|---|---|
| 1880 .... | No rain fell for | 21 | consecutive days— | Oct. 26 to Nov. 17. |
| 1881 | „ | 21 | „ | March 25 to April 16. |
| 1882 | „ | 28 | „ | April 24 to May 23. |
| 1884 | „ | 21 | „ | April 12 to May 4. |
| 1884 and 1885 | „ | 22 | „ | Dec. 12 to Jan. 4. |
| 1885 | „ | 36 | „ | April 8 to May 15. |
| 1888 | „ | 17 | „ | Feb. 18 to March 7. |
| 1888 | „ | 22 | „ | March 15 to April 7. |
| 1889 | „ | 16 | „ | Nov. 17 to Dec. 4. |

Dr. Chaplin says "these fine days of the winter and early spring are some of the most enjoyable the climate of Palestine affords."

Showing connection of Rain with directions of Wind at *Sarona*.

| Rainy Seasons. | No. of Rainy Days. | Direction of Wind during Rainfall. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | N. | N.E. | E. | S.E. | S. | S.W. | W. | N.W. |
| 1879-80 | 69 | ... | 7 | 7 | 17 | 14 | 13 | 9 | 2 |
| 1880-81 | 54 | ... | 3 | 4 | 6 | 16 | 13 | 11 | 1 |
| 1881-82 | 59 | 1 | 1 | 3 | 13 | 23 | 11 | 5 | 2 |
| 1882-83 | 62 | 5 | 2 | 1 | 10 | 24 | 11 | 9 | ... |
| 1883-84 | 77 | 2 | 3 | 10 | 9 | 35 | 8 | 7 | 3 |
| 1884 85 | 58 | 6 | 5 | 11 | 4 | 9 | 8 | 9 | 6 |
| 1885-86 | 63 | 1 | ... | 7 | 8 | 31 | 6 | 4 | 6 |
| 1886-87 | 52 | 2 | ... | 7 | 4 | 21 | 6 | 9 | 3 |
| 1887-88 | 46 | ... | 1 | 5 | 4 | 15 | 13 | 5 | 3 |
| 1888-89 | 62 | ... | 1 | 5 | 7 | 25 | 15 | 8 | 1 |
| Totals ... | 602 | 17 | 23 | 60 | 82 | 213 | 104 | 76 | 27 |

The number of days of rain in each rainy period has varied from 46 in the period 1887-8 to 77 in that of 1883-4. The average number is 60. Of the 602 days of rain in the 10 years 17 were from the north, but none fell from the north in the first two and in the last two periods, and only one on the 3rd and 7th, whilst the very unusual number of 6 with this wind took place in the 6th period. Twenty-three were from the north-east, of which 7 were in the 1st period and 5 in the 6th, whilst no rain fell with the north-east on the 7th and 8th period. There were 82 from the south-east, varying from 17 in the 1st to 4 in the 6th period. There were 213, being more than one-third of the whole, from the south ; 101 from the south-west ; 76 from the west ; and 27 from the north-west.

TABLE IV.—Mean Amount of Cloud in each month at *Sarona*.

| Months. | Years. | | | | | | | | | | Mean of 10 years. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1880. | 1881. | 1882. | 1883. | 1884. | 1885. | 1886. | 1887. | 1888. | 1889. | |
| January .. | 5·8 | 4·6 | 4·8 | 7·2 | 6·6 | 6·3 | 6·5 | 5·8 | 5·6 | 7·1 | 6·0 |
| February.. | 5·3 | 6·7 | 7·4 | 6·2 | 7·3 | 4·3 | 5·0 | 4·7 | 6·6 | 6·2 | 6·0 |
| March .. | 6·6 | 4·2 | 4·1 | 4·2 | 5·3 | 4·7 | 5·9 | 4·4 | 4·1 | 5·8 | 4·9 |
| April .. | 5·8 | 6·0 | 5·5 | 4·2 | 5·7 | 5·4 | 3·5 | 5·8 | 5·8 | 4·2 | 5·2 |
| May .. | 2·7 | 3·1 | 3·2 | 3·2 | 5·0 | 2·6 | 3·3 | 2·1 | 3·0 | 6·2 | 3·4 |
| June .. | 1·8 | 1·6 | 1·4 | 1·9 | 1·9 | 2·8 | 0·7 | 2·4 | 1·4 | 2·6 | 1·8 |
| July .. | 2·4 | 1·9 | 3·2 | 2·9 | 3·4 | 2·5 | 1·6 | 3·7 | 1·9 | 2·2 | 2·6 |
| August .. | 2·5 | 2·3 | 3·7 | 2·7 | 3·0 | 1·4 | 1·8 | 1·9 | 1·7 | 3·1 | 2·4 |
| September. | 2·2 | 2·6 | 2·5 | 2·1 | 3·8 | 1·6 | 2·5 | 2·2 | 2·7 | 3·9 | 2·6 |
| October .. | 3·1 | 3.2 | 2·3 | 4·9 | 4·0 | 3·1 | 2·7 | 2·2 | 5·5 | 2·2 | 3·3 |
| November | 4·1 | 5·0 | 4·7 | 5·1 | 4·2 | 2·6 | 4·9 | 4·3 | 4·9 | 2·8 | 4·3 |
| December . | 5·8 | 4·5 | 5·2 | 5·3 | 3·7 | 4·7 | 3·4 | 4·6 | 6·3 | 6·7 | 5·0 |
| Means .. | 4·0 | 3·8 | 4·0 | 4·2 | 4·5 | 3·5 | 3·5 | 3·7 | 4·1 | 4·4 | 4·0 |

The mean amount of cloud in each month varied :—

| | | | The mean for 10 years was |
|---|---|---|---|
| In January | from .... .... | 4·6 in 1881 to 7·2 in 1883 .... | 6·0 |
| February | „ .... .... | 4·3 „ 1885 „ 7·4 „ 1882 .... | 6·0 |
| March | „ | 4·1 in 1882 and 1888 „ 6·6 „ 1880 .... | 4·9 |
| April | „ .... .... | 3·5 in 1886 „ 6·0 „ 1881 .... | 5·2 |
| May | „ .... .... | 2·1 „ 1887 „ 6·2 „ 1889 ... | 3·4 |
| June | „ .... .... | 0·7 „ 1886 „ 2·8 „ 1885 .... | 1·8 |
| July | „ .... .... | 1·6 „ 1886 „ 3·7 „ 1887 .... | 2·6 |
| August | „ .... .... | 1·4 „ 1885 „ 3·7 „ 1882 .... | 2·4 |
| September | „ .... .... | 1·6 „ 1885 „ 3·9 „ 1889 .... | 2·6 |
| October | „ | 2·2 in 1887 and 1889 „ 5·5 „ 1888 .... | 3·3 |
| November | „ .... .... | 2·6 in 1885 „ 5·1 „ 1883 .... | 4·3 |
| December | „ .... .... | 3·4 „ 1886 „ 6·7 „ 1889 .... | 5·0 |

The largest monthly mean amount of cloud in each year was :—

| | | |
|---|---|---|
| In 1880 in | March .... .... .... .... .... | 6·6 |
| 1881 „ | February .... .... .... .... .... | 6·7 |
| 1882 „ | February .... .... .... .... .... | 7·4 |
| 1883 „ | January .... .... .... .... .... | 7·2 |
| 1884 „ | February .... .... .... .... .... | 7·3 |
| 1885 „ | January .... .... .... .... .... | 6·3 |
| 1886 „ | January .... .... .... .... .... | 6·5 |
| 1887 „ | January and April .... .... .... .... | 5·8 |
| 1888 „ | February .... .... .... .... .... | 6·6 |
| 1889 „ | January .... .... .... .... .... | 7·1 |

Therefore the largest monthly mean amount of cloud has been :—

Five times in January.
Four times in February.
Once in March.
Once in April.

The largest amount of cloud in any month was 7·4 in February, 1882 ; the next in order were 7·3 in February, 1884, and 7·2 in January, 1883.

The smallest amount of cloud in any month was 0·7 in June, 1886 ; the next in order was 1·4 in June, 1882 ; June, 1888 ; and August, 1885.

The largest average monthly amount was 6·0 in both January and February, and the next in order were 5·2 in April, and 5·0 in December ; and the smallest were 1·8 in June, 2·4 in August, and 2·6 in both July and September.

The numbers at the foot of the column show the mean amount of cloud in each year. The largest amount was 4·5 in 1884 ; the next in order were 4·4 in 1889, and 4·2 in 1883. The smallest were 3·5 in both 1885 and 1886 ; the next in order was 3·7 in 1887.

TABLE V.—Number of Cloudless Days in each Month at *Sarona*.

| Months. | Years. | | | | | | | | | | Means of 10 Years. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1880. | 1881. | 1882. | 1883. | 1884. | 1885. | 1886. | 1887. | 1888. | 1889. | |
| January .. | 6 | 11 | 8 | 1 | 2 | 2 | 7 | 6 | 6 | 4 | 5·3 |
| February.. | 6 | 2 | 0 | 9 | 3 | 9 | 10 | 6 | 2 | 6 | 5·3 |
| March .. | 3 | 12 | 3 | 11 | 2 | 10 | 5 | 8 | 9 | 6 | 6·9 |
| April .. | 5 | 5 | 6 | 7 | 7 | 5 | 7 | 6 | 3 | 9 | 6·0 |
| May .. | 10 | 13 | 4 | 13 | 5 | 10 | 9 | 14 | 8 | 3 | 8·9 |
| June .. | 12 | 17 | 8 | 14 | 16 | 10 | 20 | 5 | 13 | 12 | 12·7 |
| July .. | 8 | 13 | 1 | 5 | 4 | 7 | 12 | 3 | 13 | 13 | 7·9 |
| August .. | 9 | 10 | 4 | 8 | 3 | 13 | 8 | 6 | 15 | 1 | 7·6 |
| September | 15 | 13 | 6 | 9 | 1 | 9 | 7 | 13 | 3 | 5 | 8·1 |
| October .. | 14 | 14 | 11 | 5 | 8 | 9 | 12 | 17 | 7 | 15 | 11·2 |
| November . | 9 | 8 | 4 | 5 | 11 | 14 | 8 | 9 | 7 | 11 | 8·0 |
| December . | 7 | 8 | 2 | 5 | 12 | 5 | 14 | 11 | 4 | 4 | 7·2 |
| Sums .. | 104 | 126 | 57 | 92 | 74 | 103 | 119 | 104 | 90 | 92 | 96·0 |

The number of cloudless days in each month varied :—

| | | | | The mean of 10 years was |
|---|---|---|---|---|
| In January | from 1 in 1883 | to 11 in 1881 | .... .... .... | 5·3 |
| February | „ 0 „ 1882 | „ 10 „ 1886 | .... .... .... | 5·3 |
| March | „ 2 „ 1884 | „ 12 „ 1881 | .... .... .... | 6.9 |
| April | „ 3 „ 1888 | „ 9 „ 1889 | .... .... .... | 6·0 |
| May | „ 3 „ 1889 | „ 14 „ 1887 | .... .... .... | 8·9 |
| June | „ 5 „ 1887 | „ 20 „ 1886 | .... .... | 12·7 |
| July | „ 1 „ 1882 | „ 13 „ 1881, 1888, and 1889 | ... | 7·9 |
| August | „ 1 „ 1889 | „ 15 „ 1888 | .... .... .... | 7·6 |
| September | „ 1 „ 1884 | „ 15 „ 1880 | .... .... .... | 8·1 |
| October | „ 5 „ 1883 | „ 17 „ 1887 | .... .... .... | 11·2 |
| November | „ 4 „ 1882 | „ 14 „ 1885 and 1889 | .... .... | 8·9 |
| December | „ 2 „ 1882 | „ 14 „ 1886 | .... .... .... | 7·2 |

The largest number of cloudless days in any month in each year was :—

| | | |
|---|---|---|
| In 1880 | in September .... .... .... .... .... | 15 |
| 1881 | „ June .... .... .... .... .... | 17 |
| 1882 | „ October .... .... .... .... .... | 11 |
| 1883 | „ June .... .... .... .... .... | 14 |
| 1884 | „ June .... .... .... .... .... | 16 |
| 1885 | „ November .... .... .... .... .... | 14 |
| 1886 | „ June .... .... .... .... .... | 20 |
| 1887 | „ October .... .... .... .... .... | 17 |
| 1888 | „ August .... .... .... .... .... | 15 |
| 1889 | „ October .... .... .... .... .... | 15 |

Therefore the greatest number of cloudless days in one month occurred during the 10 years—

| | | |
|---|---|---|
| Four times | in | June. |
| Three | „ | October. |
| Once | „ | August. |
| Once | „ | September. |
| Once | „ | October. |

The greatest number in any month was 20 in June, 1886, and the next in order was 17 in both June, 1881, and October, 1887.

There were no cloudless days in February, 1882, and only 1 in each of the months of July, 1882; January, 1883; September, 1884; and August, 1889.

The largest monthly average of cloudless days was 12·7 in June; the next in order were 11·2 in October, and 8·9 in both May and November; and the smallest were 5·3 in both January and February, and the next in order was 6·0 in April.

The numbers at the foot of the column show the number of cloudless days in each year; the greatest was 126 in 1881, the next in order were 119 in 1886, and 104 in both 1880 and 1881. The smallest were 57, in 1882; the next in order were 74 in 1884, and 90 in 1888. The total number of cloudless days in the 10 years was 961, or 96·1 days yearly.

*Thunderstorms occurred* in 1880 on December 8th and 29th; in 1881 on February 5th, March 3rd, 4th, 18th, 19th and 25th; none were reported in 1882; in 1883, on November 2nd, 25th and 28th; in 1884, on January 6th, 14th and 19th, February 8th, April 12th, October 27th, and November 20th; in 1885, on November 12th, 15th, 24th, 26th, 27th and 28th; in 1886, on January 4th and April 5th; none were reported in 1887; in 1888, on October 1st; and in 1889, on September 21st.

*Thunder was heard but lightning was not seen* in 1886, on February 2nd, and in 1888 on December 5th.

*Lightning was seen but thunder was not heard* in 1884, on October 11th, and in 1886 on February 2nd.

*Hail fell* in 1881 on March 19th; in 1883, on November 2nd; in 1884, on January 20th and 21st, and on April 12th; and in 1886, on April 5th.

*Fog prevailed* in 1881, on March 30th and June 25th; in 1883, on October 5th and 6th, and December 16th; in 1884, on February 21st, March 3rd, April 29th, May 29th, October 18th and 25th, November 27th and December 22nd; in 1885, on April 11th, August 5th, and December 18th and 20th; and in 1886, on February 20th, March 9th, and July 13th.

*Snow.*—None was reported to have fallen during the 10 years.

TABLE VI.—Rainfall in each Month at *Blackheath*.

| Months. | Years. | | | | | | | | | | Sums of 10 Years. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1880. | 1881. | 1882. | 1883. | 1884. | 1885. | 1886. | 1887. | 1888. | 1889. | |
| January .. | 0·33 | 2·16 | 1·16 | 1·75 | 1·73 | 1·15 | 3·45 | 1·14 | 0·95 | 0·82 | 14·64 |
| February.. | 2·36 | 2·51 | 1·21 | 2·64 | 1·25 | 2·18 | 0·56 | 0·68 | 1·06 | 2·32 | 16·77 |
| March .. | 0·48 | 1·59 | 1·31 | 0·72 | 1·24 | 1·46 | 0·99 | 1·09 | 2·53 | 1·29 | 12·70 |
| April .. | 2·21 | 0·49 | 2·67 | 1·73 | 1·12 | 2·02 | 1·29 | 1·50 | 1·55 | 1·86 | 16·44 |
| May .. | 0·58 | 1·56 | 1·53 | 1·70 | 0·93 | 2·22 | 4·22 | 1·84 | 0·63 | 3·21 | 18·42 |
| June .. | 2·38 | 2·03 | 2·81 | 1·47 | 2·11 | 1·51 | 0·47 | 1·25 | 3·49 | 2·13 | 19·65 |
| July .. | 3·89 | 2·16 | 2·66 | 1·91 | 2·18 | 0·46 | 2·40 | 0·88 | 6·58 | 2·04 | 25·16 |
| August .. | 0·97 | 4·64 | 1·06 | 0·54 | 0·25 | 1·38 | 1·01 | 2·99 | 3·59 | 1·57 | 18·00 |
| September | 4·14 | 2·40 | 2·81 | 4·61 | 2·16 | 3·67 | 1·05 | 2·56 | 0·78 | 1·49 | 25·67 |
| October .. | 7·94 | 2·97 | 6·53 | 1·54 | 1·08 | 3·11 | 1·52 | 1·07 | 1·26 | 3·93 | 30·95 |
| November | 2·04 | 2·47 | 2·50 | 3·12 | 1·18 | 2·70 | 3·05 | 3·98 | 3·74 | 0·80 | 25·58 |
| December | 2·79 | 2·74 | 2·39 | 0·76 | 1·99 | 1·01 | 3·81 | 1·49 | 0·90 | 1·35 | 19·23 |
| Sums .. | 30·11 | 27·72 | 28·64 | 22·49 | 17·22 | 22·87 | 23·82 | 20·47 | 27·06 | 22·81 | 24·31 average. |

The extreme monthly falls of rain in each month are as follows :—

| | The smallest fall was inch. | The largest fall was inches. | The mean was inches. |
|---|---|---|---|
| In January .... | 0·33 in 1880 .... | 3·45 in 1886 .... | 1·46 |
| February .... | 0·56 „ 1886 .... | 2·64 „ 1883 .... | 1·68 |
| March .... .... | 0·48 „ 1880 .... | 2·53 „ 1888 .... | 1·27 |
| April .... .... | 0·49 „ 1881 .... | 2·67 „ 1882 .... | 1·64 |
| May .... .... | 0·58 „ 1880 .... | 4·22 „ 1886 .... | 1·84 |
| June .... .... | 0·47 „ 1886 .... | 3·49 „ 1888 .... | 1·97 |
| July .... .... | 0·46 „ 1885 .... | 6·58 „ 1888 .... | 2·52 |
| August.... .... | 0·25 „ 1884 .... | 1·64 „ 1881 ... | 1·80 |
| September .... | 0·78 „ 1888 .... | 4·61 „ 1883 .... | 2·57 |
| October.... .... | 1·07 „ 1887 .... | 7·94 „ 1880 .... | 3·10 |
| November .... | 0·80 „ 1889 .... | 3·98 „ 1887 .... | 2·56 |
| December .... | 0·76 „ 1883 .... | 3·81 „ 1886 .... | 1·92 |

The largest monthly fall of rain in each year has been—

| | | |
|---|---|---|
| In 1880, in October .... .... .... | 7·94 | inches. |
| 1881 „ August .... .... .... | 4·64 | „ |
| 1882 „ October .... .... .... | 6·53 | „ |
| 1883 „ September.... .... .... | 4·61 | „ |
| 1884 „ July .... .... .... | 2·18 | „ |
| 1885 „ September.... .... .... | 3·67 | „ |
| 1886 „ May .... .... .... | 4·22 | „ |
| 1887 „ November.... .... .... | 3·98 | „ |
| 1888 „ July .... .... .... | 6·58 | „ |
| 1889 „ October .... .... .... | 3·93 | „ |

Therefore the largest monthly fall of rain has been—

Three times in October,
Twice in July,
Twice in September,

and once in each of the months of May, August and November.

The largest fall of rain in any month was 7·94 inches in October, 1880; the next in order were 6·58 inches in July, 1888, and 6·53 inches in October, 1882.

The largest average monthly fall was 3·10 inches in October; the next in order were 2·57 inches in September; and 2·56 inches in November.

The numbers at the foot of the column show the fall of rain in each year; the largest fall, 30·11 inches, was in 1880; the next in order were 28·64 inches in 1882, and 27·72 inches in 1881. The smallest fall was 17 22 inches in 1884; the next in order were 20·47 inches in 1887, and 22·49 inches in 1885. The average fall was 24·32 inches.

TABLE VII.– Number of Days on which Rain fell in each Month at *Blackheath*.

| Months. | Years. | | | | | | | | | | Sums of 10 Years. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1880. | 1881. | 1882. | 1883. | 1884. | 1885. | 1886. | 1887. | 1888. | 1889. | |
| January .. | 7 | 7 | 9 | 23 | 16 | 12 | 18 | 14 | 12 | 9 | 117 |
| February.. | 17 | 15 | 6 | 14 | 11 | 17 | 7 | 6 | 15 | 19 | 127 |
| March .. | 5 | 12 | 10 | 10 | 8 | 6 | 11 | 10 | 20 | 13 | 105 |
| April .. | 14 | 8 | 11 | 10 | 11 | 10 | 14 | 11 | 18 | 17 | 122 |
| May .. | 4 | 11 | 12 | 10 | 10 | 16 | 15 | 17 | 6 | 14 | 115 |
| June .. | 18 | 10 | 19 | 14 | 8 | 6 | 8 | 3 | 18 | 6 | 111 |
| July .. | 22 | 11 | 19 | 15 | 14 | 4 | 12 | 9 | 23 | 16 | 145 |
| August .. | 7 | 18 | 15 | 12 | 6 | 10 | 9 | 8 | 11 | 11 | 107 |
| September | 12 | 17 | 15 | 16 | 13 | 17 | 8 | 14 | 9 | 7 | 128 |
| October .. | 18 | 12 | 24 | 15 | 13 | 17 | 16 | 9 | 8 | 17 | 149 |
| November | 13 | 18 | 17 | 17 | 8 | 14 | 15 | 22 | 15 | 7 | 146 |
| December | 15 | 14 | 18 | 11 | 17 | 11 | 14 | 14 | 8 | 11 | 133 |
| Sums .. | 152 | 153 | 175 | 167 | 135 | 140 | 147 | 137 | 163 | 147 | 1,515 |

The number of days of rain in each month have varied—

| | From— | To— | The average is |
|---|---|---|---|
| In January.... | 7 in both 1880 and 1881 .... | 23 in 1883 .... .... | 11·7 |
| February | 6 „ 1882 and 1887 .... | 19 „ 1889 .... .... | 12·7 |
| March .... | 5 in 1880 .... .... .... | 20 „ 1888 .... .... | 10·5 |
| April .... | 8 „ 1881 .... .... .... | 18 „ 1888 .... .... | 12·2 |
| May .... | 4 „ 1880 .... .... .... | 17 „ 1887 .... .... | 11·5 |
| June .... | 3 „ 1887 .... .... .... | 19 „ 1882 .... .... | 11·1 |
| July .... | 4 „ 1885 .... .... .... | 23 „ 1888 .... .... | 14·5 |
| August .... | 6 „ 1884 .... .... .... | 18 „ 1881 .... .... | 10·7 |
| September | 7 „ 1889 .... .... .... | 17 „ 1881 and 1885.... | 12·8 |
| October .... | 8 „ 1888 .... .... .... | 24 „ 1882 .... .... | 14·9 |
| November | 7 „ 1889 .... .... .... | 22 „ 1887 .... .... | 14·6 |
| December | 8 „ 1888 .... .... .... | 18 „ 1882 .... .... | 13·3 |

The greatest monthly number of days of rain in each year has been :—

| | | |
|---|---|---|
| In 1880, in | July .... .... .... .... | 22 |
| 1881 „ | August .... .... .... .... | 18 |
| „ „ | November .... .... .... | 18 |
| 1882 „ | October .... .... .... .... | 24 |
| 1883 „ | January .... .... .... .... | 23 |
| 1884 „ | December .... .... .... | 17 |
| 1885 „ | Feb., Sept., and Oct. .... .... | 17 |
| 1886 „ | January .... .... .... .... | 18 |
| 1887 „ | November .... .... .... | 22 |
| 1888 „ | July .... .... .... .... | 23 |
| 1889 „ | February.... .... .... .... | 19 |

So that the greatest number of rainy days have been :—

Twice in January.
„ February.
„ July.
„ October.
Once in August.
„ September.
„ November.
„ December.

The numbers in the last column of the preceding table show the number of days of rain in every month in 10 years.

The largest number is 149 in October ; the next in order are 146 in November and 145 in July. The smallest numbers are 105 in March ; 107 in August ; and 111 in June.

The numbers at the foot of Table VII show the number of days of rain in each year. The largest number is 175 in 1882 ; the next in order are 167 in 1883, and 163 in 1888. The smallest numbers are 135 in 1884, 137 in 1887, and 140 in 1885. The total number of days of rain in the 10 years is 1,515 on 151½ days yearly.

# ESSAYS ON THE SECTS AND NATIONALITIES OF SYRIA AND PALESTINE.

## THE MARONITES.

By Frederick Jones Bliss, B.A.

It is not the object of this essay to discuss at any length the vexed question of the origin of the Maronites, or to determine their exact relationship to Rome throughout the middle ages, but rather to present a sketch of the sect as it is to-day. In touching briefly upon early historical points, we shall be satisfied with the conclusions drawn by the authorities in such matters. In a number of sections we shall speak of the geographical distribution of the Maronites, of their general council, of their clergy, of their monasteries and conventual discipline, of their liturgical books, of their feasts and fasts, of the customs pertaining to their rites of baptism, marriage, and burial, and of any peculiarities of the sect. A large part of the Lebanon has been visited by the writer, and most of the information contained in the essay has been obtained by word of mouth from Maronites, or from their own books. It is not easy in Syria to arrive at exact information, and the writer, not having had access to any large general library, would wish to apologise in advance for any mistakes that may be found, notwithstanding his careful attempts to verify every statement.

### I.

### The Maronites and the Lebanon.

The Lebanon is the stronghold of the Maronites. They are to be found in Aleppo, in Damascus, in Nazareth, in Cyprus, in Alexandria, and in all the maritime cities of Syria, but their home is in the mountains. The Lebanon follows the sea-coast in a general northerly direction from a point midway between Tyre and Sidon to a point somewhat north of Tripoli—a distance of about 120 miles. Its greatest breadth does not exceed 25 or 30 miles. Its highest peaks rise to a height of 10,000 feet.

The Maronites are scattered over the whole range, but they are found in greatest numbers in the northern part. The Kesrawan, north of the Dog River and Belad Bsherreh, below the cedars are almost exclusively Maronite.

A Maronite ecclesiastic[1] estimates the entire number of Maronites at 300,000. Probably almost four-fifths of these are to be found in the ranges of the Lebanon. In these mountains there are Druzes, a few Moslems, and Metawileh, Greeks, Greek Catholics, a few Protestants, and finally Maronites, who form about three-fifths of the whole population.

The Kesrawan possesses extraordinary scenery. Even from Beirût the view is unique. One looks across the bay to the ashen-grey hills rising almost sheer from the blue water, with perpendicular strata of limestone running up over their summits and on up to the sharp outline of the loftier rocky ridges, with jagged points, like the teeth of a saw. On every prominent knoll or ridge stands a convent; villages gleam at different altitudes—a beautiful picture always, but bleak and grey till touched by the sunset light, when the deep ravines cleaving the higher hills are marked by dark shadows, and the rock-embossed summits, glowing with purple and rose, are thrown out into sharpest relief.

Nor is a nearer view wanting in surprise. To one toiling up the steep foot hill rising from the Bay of Juneh, the Kesrawan gives little promise of fertility. The rich cultivation of the plain climbs the hill for only two or three hundred feet, giving place to a few scrub oaks scattered over the dry chalky soil. A backbone of rock breaks out at the top of this hill, and in it there is a square cut called "the gates of the winds." A few steps through this cut brings you to a sudden halt. The hill drops as abruptly upon this side as upon the other, but upon what a steeply fertile valley. Far below lie the red-tiled buildings of the Latin College of Antura; the bottom of the valley is a green nest of orange trees and other fruits; on the opposite valley wall a stately grove of pines protects a loftily-perched belfried nunnery; terrace rises above terrace, where the green mulberry shows gay against the white soil, in an extraordinary perpendicular series—it is a vision of hanging gardens, of a precipice in cultivation. The white buildings of the monastery of the Syriac Catholics seems fastened against the steep side of the hill to the left. Through the cut you look back at a wall of sea, palpitating with brilliant tints of amethyst and turquoise, the soft round clouds in the sky above mirrored on its surface like a gentle breathing upon polished metal. As you ride along the ridge, the views afford a strange mixture of wildness and fertility. The scenery impresses one as closely packed, as having a bewildering variety for a small compass; the effect of these pyramidal hills, with steep straths of pine and patches of oak falling on one side to the Bay of Juneh, and on the other to rich narrow

[1] See: Cenni Storici Sulla Nazione Siro—Maronita, etc., per G. Notaini Der'auni Livorno; Francesco Vigo, 1890.

valleys, while the jagged slopes tower above, is startling, and almost theatrical.

Villages are thickly planted among these lower hills, notwithstanding a notorious scarcity of water. The upper Kesrawan has several celebrated springs, among which are the ice-cold Neb'a-el-Leben and Neb'a-el-'Asil, the fountains of milk and honey. I reserve a description of the Bsherreh district for the section on the monasteries.

That the Maronites have inhabited these Lebanon regions for more than 12 centuries is historically clear. The question as to how long their ancestors were there before them merges itself in the general problem of Syrian chronology, which is yet to be solved. With the exception of the Bedouins, of the Nusairiyeh, who are probably descendants of ancient heathen, and of the noble Druze and Moslem families, whose pedigree is Arab, together with the houses of Shehaab[1] and Bilemma, now Maronite, but formerly Moslem and Druze respectively ; it is at present impossible to speak definitely of the ancestry of any given division of the people. Among the population we have descendants of the ancient Canaanites, of Jew, of Greek and Roman colonists, of Arab invaders, of Frankish Crusaders, and possibly of Mongols, but definitely to recognise each element is impossible. Religion is not enough to determine race. While in some cases the Moslem physiognomy points to an Arab origin, in others the difference of appearance between Moslem and Christian is only a matter of facial expression, induced by a different habit of mind. For the Moslems include not only the descendants of the Arab invaders, but of those Christians who yielded to Mohammed's sword. In the towns of Nebk and Yabrud in the anti-Libanus, Moslems and Christians are not easily distinguished, -features, expression, speech, dress, and habits being much the same. In fact they are but one people, one branch of which embraced Islam while the other rejected it.

Renan,[2] without giving his authority, asserts that the Maronites are descendants of an ancient Christian family of Antioch which took refuge in the Lebanon to escape the persecution of the Orthodox Church. He says that the Maronite clergy believe that the Lebanon was always Jewish or Christian, having accepted Christianity at its first preaching, but he adds that the Lebanon was one of the last districts to be converted. It is his belief that "the Lebanon is truly the tomb of an old world gone by, which has disappeared body and soul. A total substitution of race, language, and religion has taken place ; Maronites, Greeks, Metawileh, Druzes, Moslems, Arabs, and Turcomans are there of recent date."

On the contrary, it is the opinion of others that in the Maronites we find descendants of the pagan tribes inhabiting the Lebanon at the remotest periods of Jewish history.

The Maronites date their origin from the days of the Abbot Marûn who, they say, died in the year 400 A.D. Gibbon says that "the rival

[1] The Hasbeya portion of this family is still Moslem.

[2] "Mission de Phenicie," page 335.

cities of Emesa and Apamea disputed his relics, and 600 of his disciples united their solitary cells on the banks of the Orontes." Whether the Abbot Marûn is historical or mythical is not clear, but it seems certain that this monastery of the Orontes became the nursery of Monothelitism. The warlike inhabitants of the Lebanon who were at the time under the rule of local princes, adopted the heresy towards the close of the 7th century. Justinian II employed the aid of these warriors in a campaign against the Khalif Abd-el-Melek, but after a decided victory over the common foe, the orthodox Emperor turned his forces against his allies, who would not give up their heresy, and who received the name of Mardaites or rebels, while those who remained attached to the Emperor were called Melkites or royalists, a name borne by the Greek Christians of Syria till the present day. The monastery on the Orontes was ravaged. Dr. Wortabet[1] argues that the name Maronite was prior to the name Mardaite, as the Lebanon were called rebels in consequence of their persisting in the heresy of Marûn. It is still a point in dispute whether their name is derived from the Monk Marûn, or from Yuhauna Marûn. their first patriarch, who they say was chosen in the year 685, and who died in 707. Most Maronites hold the former view. Notwithstanding the hostile Greeks on the one hand and the Saracen invaders on the other, the Maronites, under leaders whose exploits are celebrated by their own annalists, long retained an independence in their mountain fastnesses, and the acts of the Council held in the last century always referred to them as a nation. In these strongholds of the hills they have always maintained religious freedom, even under the Turkish rule, and have afforded an asylum for many who have been persecuted, religiously or politically.

The Maronites not only glory in an early nationality but they deny that they were ever heretical. Maronite scholars trained at Rome, such as Faustus Nairon (in an elaborate treatise: "De Origine Nomine ac Religione Maronitarum," Rome, 1679), Gabriel Sionita, Abraham Echelensis, &c., have tried to vindicate their church against the charge of Monothelitism. Against their position we have the testimony of William of Tyre, and of Jacques de Vitry, Bishop of Tyre, in the 12th century. I give the passage from William of Tyre as quoted by Dr. Wortabet: "A Syrian nation in the province of Phœnicia, inhabiting the cliffs of Lebanon, near the city of Biblos, while enjoying temporal peace, experienced a great change in state. For having followed the errors of one *Maro*, a *heresiarch*, for nearly 500 years, and so as as to be called after him Maronites, and to be separated from the Church of the Faithful and maintain a separate worship, through divine influence returning now to a sound mind, they put on resolution and joined themselves to Americus, the (Latin) Patriarch of Antioch."[2]

Jacques de Vitry, in his "Historia Hierosolymitana," speaks of "a people called Maronites from the name of a certain man, their master,

[1] "Religion in the East," p. 104.
[2] "Religion in the East," p. 106.

Maron, a heretic, who affirmed that there was in Jesus but one will or operation. They remained separated from the Church nearly 500 years. At last, their hearts being turned, they made profession of the Catholic faith in the presence of the venerable Father Amaury, Patriarch of Antioch, and adopted the traditions of the Roman Church."[1] Dr. Wortabet adds the testimony of John of Damascus, who "pronounced the Maronites to be heretics, with whom he could have no communion;" also of Timothy, a Presbyter of Constantinople, who wrote a service for the reception of repentant heretics into the Church, including Maronites; also of an Arabic MS. in his possession of the History and Acts of the Councils, "in which the Maronites are expressly mentioned by name as being of the number condemned by the Sixth Council for Monotheli-tism."

This historical evidence is convincing, and Mosheim says that leading Catholic scholars are agreed that the origin of the Maronites is tinged both with Monothelitism and Monophysitism. Out of respect, however, for Maronite traditions, Rome, while she has not canonized the two Marûns, has practically recognised the local patron saints of what is now a loyal portion of the Church. The position is illogical, but admirably illustrates the adaptability of Rome. In various Papal documents addressed to Maronite Patriarchs, it is affirmed that the Maronites have remained loyal to the Roman Church from the earliest days of Christianity.

The union with Rome was at first loose; indeed the celebrated Jacobite writer, Gregorius Bar-Hebraeus, known also as Abulpharagius, who died in 1286, speaks of the Maronites as Monothelites.[2] The formal act of union took place at the Council of Florence in 1445, when they acknowledged the supremacy of Rome in ecclesiastical discipline. Churchill, in speaking of the period previous to the union, says [3]: "For three centuries there existed a church in the Lebanon Popish in all its forms and doctrines, saving the cardinal point of submission to the Pope."

At this time the Pope Eugenius IV. gave the Maronite Prelates a general sanction to hold Provincial Councils for the regulation of matters of faith and discipline, the proceedings of which should be transmitted to the Pope by a legate present at the Council. Such a Council was held in the year 1736. Its acts and decisions form the constitution of the Maronite Church to-day. These were printed in Arabic in 1788, at the press of Mar Yuhanna, a Greek Catholic Convent, situated in a rocky valley opening into the Dog River Gorge, and in Latin early in the present century at Rome. The versions differ enough to give rise occasionally to varying interpretations, in some cases the text being fuller and more explicit in the Arabic version, and in others in the Latin.

[1] The date of this union is given as 1182.

[2] "Assemanus Bibliotheca Orientalis," tom. ii, p. 292.

[3] "Mount Lebanon," vol. iii., p. 75.

Accordingly, to avoid trouble between Maronites and the mother church, a translation of the Latin text has been recently made into Arabic—in press at the date of writing. It is interesting to notice that the Latin version will serve as the single standard.

At the end of this version there are printed various ancient documents, such as Papal Bulls, Indulgences, and Acts of Maronite Synods. Among these we may note the Synod held by Serkis, Patriarch of Antioch, March 19th, 1596, in which the anathema of the Maronite Prelate is hurled against errors ascribed to him and his nation, as well as against his defamers ; these include : Monothelitism, procession from the Father alone, denial of purgatory, denial of original sin, view that one may deny the faith with his lips but hold it in his heart, view that Confirmation is not distinct from Baptism, view that divorce may be permitted for fornication or because of incurable disease. Serkis had evidently been suspected of Greek orthodoxy. The Council of Trent is quoted, and at the close Papal Confirmation is asked.

Under date of 1562 we find the Pope Pius IV granting authority to the Patriarch to absolve certain heretics of the Maronite nation. He compliments the Patriarch upon his devotion to the See, and begs him to leave a warning to his successors to report carefully to Rome. In 1577, Gregory XIII sends to the Patriarch an Arabic translation of the Decrees and Canons of Trent and of the Catechism for Parish Priests, that errors may be more carefully avoided. Paul V, evidently in the interests of the individuality of the Maronite Church, writes to their Patriarch in 1610 concerning the restoration of certain Maronite rites which he had changed—"ancient customs not contrary to the Catholic Faith." In 1713, Clement XI declares the deposition and resignation of the Patriarch Jacob null and void, and commands the Bishops to yield him obedience and subjection. These references are enough to show that the Papal See kept careful watch over the Maronites after the Council of Florence.

According to the correspondence between the Patriarch and the Roman Prelates with reference to the Lebanon Council, given at the end of the Latin edition, the initiative was taken by the former. In letters sent to Pope Clement XII and to the Propaganda, under date of July, 1734, the Patriarch Yusif el Khazin and the Maronite Bishops speak of things in their nation which ought to be reformed and corrected ; they acknowledge that they need the help of Rome, and to this end beg that the learned Yusif el Sim'any (called at Rome Josephus Assemanus), their fellow countryman, may be sent to co-operate with them in the work of reform. In the introductory note the Maronite Prelates are represented as desiring to preserve intact the dogmas of the Catholic Faith as received by St. Peter, and recognising that some foreign elements have crept in they are anxious for reform. A year later the Propaganda issued a decree empowering Assemanus to visit the Lebanon as an Apostolic Legate to assist the Maronites in arranging their discipline, according to the instructions to be given him by the Propaganda,

and, if it should seem necessary, to call a General Council, in which he should have a vote together with the Bishops ; matters of grave moment to be referred to Rome. Assemanus was librarian of the Vatican and *Prælatus Domesticus* to the Pope. He was a distinguished scholar and author of many works, chief of which is the "Bibliotheca Orientalis," in four handsome volumes, published respectively in 1719, 1721, 1725, and 1728; it is a Thesaurus of Syriac literature, containing the lives of different authors, orthodox, Monophysite and Nestorian, and extracts from their works, with comments. In a letter to the Patriarch, Clement XII speaks of the piety and wisdom of Assemanus, and especially of his learning in Oriental subjects and the rites of the Maronite nation, which the Pope likens to a rose among thorns, and to a rock in the midst of the sea standing firm against the raging waves of numerous heretics, schismatics, and infidels, vehemently persecuting the Patriarchate of Antioch.

Assemanus arrived in Syria July 17th, 1736. It seems probable that he had prepared fully beforehand the Constitution to be presented to his fellow Maronites, for when the Patriarch came from Qannûbîn to the Convent of Raifûn in the Kesrawan in July, he appointed there private meetings, beginning September 14th, at which were presented "the propositions decided by the Apostolic Seat" and others not yet defined. At Raifûn there arose certain differences regarding the distribution of the chrismatic oil, the extent of dioceses, &c., &c. The Patriarch belonged to the famous feudal house of Khazin, and his relations seem to have supported him against the Legate. Assemanus, to avoid contention, withdrew to the Convent of Lowaizi, above the mouth of the Dog River, accompanied by the missionaries and other clergy. Here, on September 26th, the Patriarch suddenly followed him, and a friendly discussion of three days ensued, followed by the announcement of a General Council. This was opened at the Convent of Lowaizi on September 30th, and lasted for three days. There were present the Syriac Catholic and Armenian Catholic Archbishops of Damascus and Aleppo, the Abbots-General of the two Orders of Lebanon Monks, with their directors, Latin missionaries of four orders, sixteen Heads of Monasteries, the Maronite Bishops with many of the lesser clergy, chiefly nobles from the house of Khazin, and sixteen from the house of Habeish.

After mass and the reading of correspondence, the Council opened with a solemn subscription to a Confession of Faith, including the Nicene Creed, and referring to the Councils in detail, ending with that of Trent. A sermon was preached by a Jesuit father. At the six sessions of the Council, which occupied the mornings and afternoons of three days, the decrees were read and approved.

In a letter to the Propaganda the Jesuit at the head of the 'Antura Mission says that not a few abuses were corrected; he praises the wisdom, learning, and long suffering of the Legate, by which he overcame difficulties raised by Bishops, Governors, and the Patriarch himself, to the satisfaction of all. As the Canons fill 350 pages in the Arabic edition, there could have been no discussion at the Council itself. They are

divided into four parts:—Part I is on the Catholic Faith; the first sentence is as follows: "Among the especial benefits with which Almighty God has wished, by reason of his unspeakable goodness, to adorn the Apostolic Church of Antioch and our Syrian Nation of Maronites, is one to be perpetually remembered by us with due gratitude to His Majesty, namely, that the Orthodox Faith from the first preaching of Peter, the chief of the Apostles, in the region of Syria, has remained intact and unchanged to these times, so that, among the great changes wrought by heretics, schismatics, and infidels, it has suffered no loss of the sacred, Catholic, and Apostolic truth." It contains chapters on the Creed, on Preaching, on the Use of books, on Fasts and Feasts, and on the Reverence for Saints, Relics, and Images. Part II treats in detail of the Sacraments, Indulgences, and Penances, and of the sins which can be absolved alone by the Bishops and Patriarch. Part III treats of sacred offices, from Sacristan to Patriarch. Part IV treats of Churches, Convents, and Schools, with a concluding chapter on the rules of the Council, in which, among other things, it is said that this book has been derived from the rules of the Pontiffs, the decision of Councils and ancient fathers, and the rites of the ancient church of Antioch; the customs of former Maronite Prelates are to be followed with veneration, except as they may be contrary to the present Constitution, but their censures are to be revoked and only those sanctioned by their Council are to have force; the present Constitution is not to limit the authority of the Patriarch or of the Provincial Synod.

In theology the book is strictly Tridentine. All traces of heresy have long ago disappeared from the Maronites, nor are there to be found among them any peculiarities of belief. Their difference from Latin Catholicism to-day consists not in doctrine, but in the language and form of their ritual, and in the permission given to their parish clergy to marry.

The subscriptions include not only the names of the Maronite Prelates and Nobles, but those of other Catholic clergy present. The Maronite Bishop of Damascus preached a closing sermon from the text "Jesus began to do and to teach," upon the necessity of good works.[1] The benediction was pronounced by Assemanus.

An example of Oriental hyperbole appears in a letter written after the close of the Council by the Patriarch to the Pope: "God so loved the world that He sent His only begotten Son; so most Blessed Father thou hast loved us as to send us a man most acceptable to thee and to us." Assemanus reports on his Mission in a letter dated January, 1737, in which he says that the decrees are to be sent to the Pope, to be changed, corrected, amended, and confirmed.

[1] I cannot forbear quoting an amusing and unique illustration used by the Bishop. He probably preached in Arabic, but I copy from the Latin version: "Qui enim docet, nec facit, similis est fictitiis dentibus, quorum usus est ad verba proferenda, non ad cibum sumendum."

We learn from the Bull of Benedict XIV, found in the Arabic version, dated September 1st, 1741, which confirmed the Council, that there arose some difficulties between the Patriarch and the Legate (who after the Council had made a tour of inspection among the churches and monasteries) in regard to putting in force some of the decrees of the Council, namely, the complete separation of Monks and Nuns; the money given to the Patriarch and Bishops for the distribution of the chrismatic oil; and the extent and permanency of Episcopal Sees which had been somewhat altered by the Council. The Patriarch consulted Rome by letters in 1737, and later by special envoy. The matter came up finally before the Apostolic Court, when the following questions were put and answered:—

1st. Did the Lebanon Council meet legally? Answered affirmatively.

2nd. Is the Council's regulation for the separation of women and nuns from Monks to be confirmed? Answered affirmatively.

3rd. Does the regulation forbidding the Patriarch to take money for oil deserve confirmation? Answer: It does, but the Pope will graciously make up the loss to him.

4th. Is the rule requiring the residence of Bishops in their Sees to be confirmed, and what is to be said as to the divisions of the Bishoprics and as to the permanency of a Bishop in his See? Answer: The Canonical decrees on this point are to be confirmed.

5th. Shall the Pope be asked to confirm the Council by a Bull? Answered affirmatively.

In apology for speaking at such length of this Council, we may say that it is important because it settled the constitution of the Maronite Church as it is to-day, and because it shows the methods by which Rome deals with a distant branch of the Church. It occupies a unique position among the Syrian churches. Until the breaking down of feudalism during the last century the Maronite Church and nation were one. The Patriarch was often chosen from a noble house, thus more truly representing the nation. The Greek Bishops are often imported, though less frequently than formerly, but a foreign Maronite prelate would be a contradiction in terms. The Maronite ritual in Syriac and Arabic is peculiar to the sect, and the ancient ecclesiastical polity is preserved. This feeling of nationality comes out in the chapter of the Council of Lebanon, which treats of the Maronite College at Rome, in the anxiety lest the attractions of the Latin ritual tempt the students to desert their own. They are forbidden to receive the Sacraments of confirmation and ordination by any rite except the Maronite, or to enter Monastic orders. A student whose loyalty to his own church is doubtful is instantly to be sent back to the Lebanon.

Though the Maronite Church has home rule, yet there are indications that Rome is strengthening her hold upon it. The Pope's Legate, who lives at Beirût, has a superintendence over all the Catholic Churches of Syria. Churchill, writing in 1852, speaks of his influence among the Maronites as slight, and of the despotic authority of the Patriarch, from which there is no appeal. The last forty years have worked change. Within a few years the monks of the Lebanon division of the Order of St. Antony, withdrawing from the Patriarch, put themselves under the protection of the Legate. At their last triennial Council he endeavoured to dictate in the election of Abbot-General, and when the monks did not comply he closed the Council. The matter was referred to Rome. The Legate was appointed Patriarch of Jerusalem, and a *locum tenens* was appointed to the duties of the Generalship till the next election. I understand that the Order now wishes to return to the allegiance of the Patriarch. Every Maronite to-day has the right of final appeal to Rome. A case in point was related to me. A certain convent in the Kesrawan had been built by the family of Zwein. It fell under the control of the Bishop, but the family of the founders reserved the right of appointing the Abbot, and claimed its support for their sick and poor. Upon the death of the Abbot, not many years ago, the Bishop and Patriarch seem to have demanded the unrestrained management of the convent. The family of Zwein, supported by the Legate, appealed to Rome, and a deed of possession was sent to them.

Speaking of the election of the Patriarch, Churchill says, "the debates usually last for many days, and even weeks." Here, again, we may contrast the past with the present. For after the death of the Patriarch this last spring his successor was elected on the ninth or tenth day, it being understood that if within that time the Bishops had made no choice the right of appointment would revert to the Pope. It was even hinted that Rome would have been pleased to prove the ineligibility of each Bishop in order that in failure of a choice within the given time, she might declare the Legate competent to assume all the patriarchal functions, thus giving a death-blow to Maronite independence The Jesuits are doing much in Syria for the mother church. Besides their superbly endowed college and Medical School in Beirût, their schools are found in the principal Maronite villages. It is said that the churches of the Lazarists and Jesuits in Beirût are fuller of Maronites than are their own churches. It has become the fashion to confess to Latin fathers, and also to observe the Latin fasts rather than the Maronite.

The Maronites may usually be distinguished by their features and general appearance. Whatever their early origin, a sense of nationality has probably done much to preserve them intact for over a thousand years. They are apparently more unified than any other Christian sect in Syria. The Arabic spoken by the Maronites in the remote and lofty regions of Bsherreh preserves some peculiar vowel sounds of the Syriac. It would have been strange if the Kesrawan and Belad Bsherreh had not

produced a type; until recently the inhabitants have seldom left their mountain homes, marriages have taken place within narrow geographical limits, often within the same family, and intermixture with other sects has been rare. In the Kesrawan the following type is common: face broad, but square rather than oval; thick, rather curly, black hair, with heavy beard and moustaches appearing early, at first glossy but apt to become grizzled and stiff; well-set eyes, almond-shaped, black or brown, with clear whites; nose inclined to be broad; straight mouth, with regular white teeth; complexion a healthy olive, with almost no red colour; medium stature; good shoulders; a fine, free carriage, and a dignified smile. Fair complexions and blue eyes occur, but they are an exception. In Bsherreh the women are handsome, with round faces and a pink and white complexion.

Like the rest of the Lebanese, they are engaged chiefly in the cultivation of wheat, the vine, mulberry, &c. Many hundreds of the women and children are engaged in the silk factories. In the large cities there are wealthy Maronite merchants. Within the last few years there has been an extraordinary craze, especially in Zahleh and the Bsherreh districts, for going to America and Australia. It is not an emigration; very few have any intention of settling in those countries. Most of them go as adventurers, often taking with them their women and children. They carry goods from Jerusalem, as well as cheap Parisian jewellery, and peddle them from State to State. As they manage to live in America on a few cents a day, making sometimes a few dollars, they return to the Lebanon with what are considered large sums of money. Hasrûn and other towns are full of fine, new houses built by these returned adventurers, who went away as poor peasants. While many succeed more are reduced to beggary, and the slums of New York are full of these Lebanon Maronites and Greeks. This exodus is discouraged by the Lebanon Government.

The three chief noble houses of the Maronites are those of Khazin—by far the most important—Habeish, and Dahdeh. Churchill says that the Habeish Sheikhs are the oldest, having been allies to the Crusaders. The feudal power of these families is altogether lost, but they are still very particular about their family alliances. During the last century the Lebanon branch of the Shehaab emirs became Maronites.[1] The emirs of the house of Bilemma' were originally Druze, but became Maronite shortly after the Shehaabs. They have been for centuries in the Lebanon, and remains of their castles are to be found in five towns, but several have passed out of their hands, the massive castle at Solîma having become a Latin school. The style of building is solid and simple,

[1] Their faces furnish a good illustration of the stamp given to physiognomy by religion. Their race is Arab (they boast descent from the Koreish) almost unmixed, as their alliances have been only with old emirical families, and yet we must look closely to distinguish them from other Maronite Christians. The Hasbeya Shehaabs are still Moslems, and show this clearly in their faces.

but the gateway at Falugha is a piece of elaborate carving in the Persian manner, with rude lions, platters of fruit and Saracenic border. From being feudal lords, with almost unlimited power, these emirs are now reduced to comparative poverty, having no political influence except what may accrue to offices held under the Pasha of the Lebanon.

The origin of the Khazins is obscure; their power in the Kesrawan began towards the close of the 16th century. The celebrated Emir Fakhredeen Ma'n, whose career is one of the most romantic in Lebanon history, passed his early years in a sort of exile under the roof of Sheikh Abu Nadir el Khazin. Later, when the Emir became head of the Lebanon, he made Sheikh Abu Nadir lord of the Kesrawan. The Khazins rapidly became the acknowledged leaders of the Christians. They built palaces, churches, and endowed many monasteries. They made alliances with the French Kings, who became protectors of the Maronite nation. Churchill gives the text of letters of protection issued by Louis XIV and Louis XV, enjoining French Consuls in the Levant to look after the interests of the Maronite Patriarch and people. For a long period the agents of the French Government in Beirût were chosen from among the Khazins. Sheikh Naufel el Khazin received as gifts from Louis XIV a sword and a ring. Rome conceded to them the right of giving investiture to the Patriarch-elect.

The Lebanon nobility exercised far into the present century all the rights and privileges of the feudal system. They regulated the dress and manner of living of the peasants, demanded personal service as well as homage, and appropriated lands very much as they liked. On the other hand, they kept open house, and extended royal hospitality. The power of the Khazins, though somewhat abated, lasted till the year 1858, when the peasants, restive under the feudal yoke, instigated by the Patriarch and the French agent at Beirût, arose in insurrection and drove out the Khazins from the Kesrawan. Some years later they returned, but their power was gone.

The last remnants of feudalism were destroyed when the Government was reconstructed after the massacres of 1860. In regard to the civil wars between the Druzes and Christians in 1845 and 1860, it may be said that the troubles were political rather than religious. It is a matter of surprise to those who know how greatly the Maronites outnumber the Druzes that the latter should have had the advantage. Two things must be remembered: first, that the Druzes were far more united than the Maronites, whose present tendency is to follow local rather than national leaders: and, second, that the Druzes rightly relied upon the inaction, if not upon the sympathy, of the Turkish troops, a state of things, of course, paralysing to the Christians.

As to mental and moral characteristics, habits and manners of life, the Maronites differ little from the other Christians of the country. They are more bigoted than the Greeks, and in purely Maronite regions Protestant missionaries have been unable to establish schools. We may trace the sources of their bigotry in their sense of national pride, as well as in real

evotion to their religion. Toleration is the child of broad-minded harity, but it may be the child of indifference as well. The Maronites re certainly not indifferent. Believing in the infallibility of their Church and of its dogmas, and cherishing a deep attachment for it, it is no wonder that they resist anything which they suppose to be hostile to its teaching. They share with all Syrians of whatever creed a vivid sense of God's Providence. In the West a belief in Providence is intellectual rather than practical, but with the Orientals the weather, health, sickness, affliction, good fortune are all referred directly to a Divine source. Repining or rebellion against God's decrees would be never thought of. On the other hand, it must be said that spirituality is at a low ebb. Of course, it is not necessary to add that there are many exceptional cases. The priests are formal in the discharge of their duties. Piety is more apt to take the form of devotion to the ceremonies of the Church than of growth in spiritual life. A lofty, disinterested ideal of character does not seem to be contemplated. The Bible is in no sense a household book. In the smaller villages preaching is unknown, and it is rare anywhere. The Virgin and the Saints are exalted practically to the loftiest rank, and share in the devotion which might otherwise be devoted to God alone. However, as will be seen further on, there are embedded in the Maronite ritual many passages of spiritual force and beauty. It is impossible to forecast the future of the Oriental Churches, but if they ever become vitalised again the Maronite Church will have preserved in its ritual germs of great spiritual power.

(*To be continued in April "Quarterly Statement."*)

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REVIEW.—*The Life and Times of Joseph, by the Light of Egyptian Lore.*

By the Rev. H. G. Tomkins.[1]

Such a book as this might be adduced as in itself an illustration and a defence of the work which this society and scholars in Assyrian and Egyptian lore have been accomplishing during the last quarter of a century. It is not too much to say that such work has absolutely given life to dry bones. The history of Joseph, as we read it in the Bible, is intensely human, even to the most careless readers. It presents a character drawn in firm, strong outline. But it stands against the sky. There is no setting—no background— no atmosphere. These things are given to it by the discoveries of modern times. We see, by the help of Mr. Tomkins' pages, Kharran, the "road," in the country of Padan Aram, by which passed continually the caravans, the pilgrims, the tribes, the armies on their way. It was not in the desert that Joseph grew up. Again, when Jacob moved south and settled at Shalem, it was not in a green wilderness, but in the road of trade and travel.

[1] The Religious Tract Society.

Again, it was not because Joseph was a favourite that his father dressed him in a coat of many colours, it was because he was the son of "Jacob's wife" (Gen. xlvi), the first-born son of the wife—not the son of Leah, or of Bilhah, or of Zilpah, but of Rachel. His dress marked his position in the household. The Egyptian pictures show that the Semitic nations of Western Asia wore coats and kilts of richly-coloured designs, and that the chieftain was distinguished by the especial form and ornamentation of his tunic. Again, in a small but significant illustration, in Joseph's dream, his sheaf arose and stood upright—in Egypt the sheaves are not set upright, but are laid flat on the ground. Again, as to the vision of the sun and moon and eleven stars, Lenormant and Sayce give sets of twelve stars taken from the ancient monument.

When Joseph is sold it is to Ishmaelite traders from the land of Midian going down from Gilead into Egypt. Their trade was in spices, of which an enormous quantity was wanted in Egypt for embalming the dead and for incense in the temples.

It would not be fair to the book to pursue the history any farther. We have here called attention to the work because such a book is in itself a justification, if one were wanted, of our work. What has been done by Mr. Tomkins for Joseph here, and in a previous work for Abraham, may be done for Joshua, for David, for any of the Biblical characters ; that is to say, they can now be presented to the reader as they were, moving among the men of their own time, clothed in their own dress, speaking their own tongue, obeying their own laws. The chief danger in such a restoration is, of course, that we are prone to forget that their laws were not ours, and that their ideas, on subjects which have now become by the development of religion, vital to Christians, were not ours.